

AMERICAN VETERINARY REVIEW,

MARCH, 1883.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 467.)

NAVICULAR DISEASE.

VI.—*Etiology*.—To properly understand the etiology of this disease, one must bear in mind the part played by the anterior legs in the action of locomotion. Columns of support more than of impulsion, it is their office to sustain the weight of the body when it is thrown forward by the extension of the hind legs. The reaction of the ground is first felt at the shoulders, through the muscular slings which attach them to the trunk, but it is partly diminished in the scapulo-humeral joint, which closes, notwithstanding the resistance of the muscles implanted on its apex. The remaining force is transmitted to the vertical column, represented by the union of the radius, the carpus and the metacarpus. Reaching the digital region, this force is there decomposed. Part of it, passing on the phalanx, loses itself and disappears in front of the horny box of the foot, the other being thrown upon the flexor tendons, and finally upon the perforans, which distributes it to the posterior parts of the foot, and to the navicular

bone. It must be observed that in this complex action of decomposition of the shock, the os sesamoid, though pushed from before backward by the os coronæ, is, however, supported by the resistance of the perforans tendon. Consequently, both the bone and the tendon are pressing upon each other, when the feet are placed on the ground, throwing the body forward by the impulse of the hinder parts, and thus press powerfully against each other.

When this pressure takes place in an animal going full speed, and a good and high stepper, it may commence by becoming merely a slight contusion, but, if often repeated, the result may be some lesion upon the corresponding surface of the bone and of the tendon, or of the synovial which facilitates their movements. But the energy of action in the animal cannot be considered the only producing cause of these lesions, as a vice of conformation in the foot, a want of elasticity in its posterior parts where the resisting power is diminished, may also produce it. The disease, then, is observed in animals whose plantar cushion, covered by a small, dry and atrophied frog, is itself badly developed, from being compressed between the bars, which are more vertical, or the heels, which are more contracted; all these being conditions which diminish the flexibility of the back of the foot.

Two principal causes, then, co-operate in the genesis of navicular disease, and are almost always present in animals thus affected. On the one hand, it will appear amongst well-bred animals, especially those of English breeds, those from Hanover, Mecklenburg and Normandy, which will be more affected. Loiset and Lafosse, however, have seen it in common breeds, in animals with flat feet and soft horns. Lafosse says he has seen it in mules. But besides this influence of the breed, there is the effect of what we may denominate the hygiene of the foot: the too dry bedding, certain wrong modes of shoeing and all the predisposing causes of contracted heels. Let us add also, as a cause, the effect of changing the animals from marshy fields, where they were walking on soft, damp ground, to stables with dry bedding—a cause commonly present in horses transported from Northern Germany to the south. Hard work and excessive exercise are also causes of this affection—for example, jumping fences with a

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heavy rider, slipping in steeple-chases, racing, a sudden stop on the forefeet, especially on stony, hard, frozen or rough grounds. All these are fruitful causes of navicular disease.

Traumatic causes, such as punctured wounds, involving the sesamoideal sheath, are also productive causes which may originate navicular disease. We do not believe in internal causes, nor admit, with Loiset, that visceral inflammation, sudden arrest of perspiration, especially of the lower part of the legs, can produce the disease. We should rather anticipate that these metastases would affect more the more important serous structures. Neither can we admit, with Lafosse, that this affection can also follow a sudden arrest of the milky secretion.

VII.—*Treatment*.—We have seen, in speaking of the terminations of this lesion, that in certain peculiar circumstances which may be accounted favorable to the return of the elasticity of the foot, a spontaneous recovery is possible. This leads us to the measure of the prophylactic means proper to be used; and it seems evident that by a better hygiene of the feet, by rational shoeing, sometimes by putting young horses only gradually to fast work, one may, in many cases, avoid navicular disease.

While it is in its first stages, one may with care and patience, sometimes relieve the patient. In this case, absolute rest is counter-indicated, but on the contrary, moderate exercise, upon even and not too hard ground; or, if the lameness is great, walking exercise only, at a moderate gait. The absorption of the serosity present is made easier by a little exercise, than by absolute rest. Bleeding from the toe, or the veins of the affected legs, is also, at least, superfluous, the disease becoming chronic almost at the outset. It is also a good practice to shoe the horse, and above all, to remove the shoe frequently. The best shoeing is that which allows for the natural expansion of the hoof. The Charlier shoe has proved useful, while the bar shoe, which is heavier, and presses upon the frog, is counter-indicated. It is important to encourage the suppleness of the hoof by proper ointment, especially the application of glycerine, and to have under the feet a bedding always slightly damp and soft. The bedding of moist saw-dust is very convenient; we prefer it to poultices, and even to

the tepid alkaline baths mentioned by Hertwig. At times, at intervals of about eight days, and then during two consecutive days, a good friction with blister ointment above the coronet is advantageous, as well as one with Lebas' ointment. English practitioners prefer salines; the better treatment would be to turn the animal to grass. Brauell advises iodine internally, and says he has found it work well. Others recommend diuretics. Setons in the shoulders or chest, seem to us inexpedient. We prefer the administration of a purgative ball every eight days. Sewell and Brauell advise a seton, running from the hollow of the coronet through the plantar cushion, a little behind the tendon of the perforans, and within a short distance, therefore, of the diseased capsule, making its exit at the anterior third of the frog. This drain is to be maintained for two, three, and even four weeks; Sewell, Brauell, Hertwig, and several other veterinarians, English especially, claiming much benefit from it. This seton is introduced by means of a curved frog seton-needle; it has been used but little in France. Bruner has recently proposed the puncture of the sesamoidal capsule with a trochar, introduced in the hollow of the coronet, an operation only practicable if the serous collection can be felt outwards. After the puncture he recommends an injection of iodine.

Lafosse proposes after the removal of the sole, the transversal incision of the plantar cushion, with removal of a part of it, down to the tendon, following the axis of the sesamoid; then the canterization of the bone and its cartilage, in imitation of what is sometimes done in punctured wounds of the foot. Brauell recommended as a useful surgical operation, the section of the perforans tendon in the metacarpal region, in order to prevent friction against the sesamoid groove, and to allow an easier adhesion between the tendon and the bone. But it is to be feared that this section, supposing that it proves successful, might so weaken the tendon as to render the animal unfit for fast work.

If navicular disease should be accompanied with deviation of the wall, and contraction, true or false, the treatment will be that of this affection in its simple form. An operation, often recommended, has been that of neurotomy, upon the posterior branches of the plantar nerves, repeated at intervals of at least fifteen

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days, in order to remove the lameness wholly, without entirely depriving the foot of the sensibility of feeling. Berger, Brauell, Bouley, Gross, Mandel and others, have obtained real success by it; but it is attended with serious dangers; at any rate the benefit is not of long duration, or about one year. The animal then stumbles more readily, and is more exposed to traumatic lesions, etc., and it is probable from this cause that double neurotomy is seen to be followed by softening of the deep parts of the foot, suppuration, sloughing of the foot, while the animal has previously shown no signs of pain. Consequently, neurotomy is an operation which finds its application only in peculiar and exceptional cases, and animals thus operated upon remain fit for light work only.

(To be continued.)

EXTRACTS FROM A DAILY JOURNAL.
HORSES TREATED BY THE ENGLISH MEDICINE.

BY J. P. KLENCH, V.S.

(Continued from page 491.)

No. 29.—Horse, seven years old. Entered hospital November 29, 1862, for debility. Rest and tonics; issue favorable, December 10, 1862. Works, and returns April 1, 1863, for rheumatic lameness; issue on April 2d. Works, and returns May 24th, for chronic founder; issue pretty favorable, July 5th. Works, and comes back November 2, 1863, for suspicion of glanders. Bad gland, and bad nasal discharge. English medicine and arsenical powders. Gets the full glanders, and was destroyed December 10, 1863. Remark: Glanders on post mortem examination.

No. 142.—Stallion, ten years old. Entered March 4, 1863, for nasal catarrh. Astringent injections, seton and arsenical powders; issue favorable March 18th. Works, and returns July 28th, for bad gland on right side. Mercurial ointment; issue pretty favorable August 10th. Works, and was treated at various times for different ailments in the two forelegs, when on November 25th he had a vaginal hydropsia and suspicious symptoms of glanders. English medicine, mercurial ointment and arsenical powders. Destroyed March 14th, 1864.

No. 12.—Horse, seven years old. Entered July 10, 1863, for bronchic cough. Diaphoretics; issue favorable July 18th. Works, and returns September 19th for chronic cough and general poor appearance. English medicine; issue favorable October 1st. Works, and returns February 7, 1864, for suspicion of glanders. Arsenical powders. Destroyed March 29, 1864.

No. 32.—Horse, eleven years old. Treated at various times for distemper and nail in foot. Entered hospital on September 26, 1863, for cartilaginous quittor, with caried bone, when he fell glandered. Besides the proper treatment for quittor, he received the English medicine, but went worse and was destroyed on April 22, 1864.

No. 61.—Stallion, nine years old. Entered September 4, 1862, for general acute farcy. Arsenical powders. Destroyed September 11th.

No. 109.—Horse, ten years old. Entered July 20, 1863, for glanders. Three chancres in left nostril, a middling good gland and bad nasal discharge on same side. Arsenical powders. As nasal discharge was increasing, the sinus was trephined, and the horse received a powder containing arsenic 3 i s.s.; pulv. conium maculatum 3 i; pulv. sinapis nigra 3 i. Horse was poisoned, and died March 11th.

No. 83.—Horse, seven years old. Entered February 25, 1863, for asthenic pneumonia. Sinapisme. A few days later a gland appears, and same powder given as to No. 109. The horse was also poisoned by arsenic, and died March 12th. Remarks: Very glandered on post mortem.

No. 89.—Horse, ten years old. Entered January 27, 1863, for old, chronic, bronchic cough. Diaphoretics with extract belladonna and phillardria aquatica. Later, the horse showed symptoms of glanders, and was destroyed March 29, 1863. Remark: Old glanders, softening of kidneys and sub-lumbar muscles.

No. 26.—Horse, nine years old. Entered October 26, 1862, for bad gland on left side. Bichromate of potasse and arsenical powders; issue favorable November 3d. Works, and returns again November 19th, for suspicion of glanders. Bad gland

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and bad nasal discharge on left side. Firing of gland, trephining of inferior maxillary sinus, astringent injection and arsenical powders. Destroyed February 1, 1863. Remark: Glanders and partial gangrene of the basis of both turbinated bones.

No. 101.—Horse, ten years old. Treated on September 17, 1862, for local farcy on left hind leg. Firing and arsenical powders; issue uncertain. Somewhat suspicious yet, and put under surveillance. On December 10, 1862, symptoms of glanders appeared. Arsenical powders. Destroyed December 30, 1862.

No. 111.—Horse, eight years old. Was treated for old chronic cough from February 4th to March 10, 1863, having had pneumonia the year before. Falls suspicious on October 15th. Arsenical powders. Destroyed December 21, 1863. Remark: Glandered on post mortem examination.

No. 123.—Horse, ten years old. Entered January 14, 1863, for suspicion. Bad nasal discharge, most abundant from right nostril; bad gland on same side. Astringent injections, arsenical powders, mercurial ointment. Destroyed February 1, 1863. Remark: Old glanders. I have seen on no other horse of this company such vast, large lesions of glanders in lungs and head as on this horse.

No. 130.—Stallion, eight years old. Entered January 16, 1863, for lameness, caused by a kick on tibia, when suddenly he commenced to roar, and died from general acute farcy on February 4, 1863.

No. 132.—Mare, seven years old. Entered November 5, 1863, for hematuria and suspicion of farcy. Tonic, ferruginous, then arsenical powders, and later, phosphor oil. Destroyed January 31, 1864.

No. 137.—Horse, seven years old. Entered August 18, 1863, for incipient hydropericarditis and a phlegmonous swelling inside of hock joint. Mineral salts, tonic, diuretics. English medicine and arsenical powders; issue uncertain. September 13, 1863. Works light; the horse suffers now from chronic hydropericarditis, has no appetite, becomes weak and has a very strong beating of heart. On November 15th he showed a bad gland and a light nasal discharge, getting worse every day, and was destroyed on December 24, 1863.

No. 145.—Horse, six years old. Was cured of bronchic cough, and entered July 26, 1863, for glanders. Two bad glands, and numerous large ulcers on left side; trephining; arsenical powders; died Aug: 7, 1863. Remark: Many ulcers in nasal cavity, carbuncular condition of blood; kidneys and liver affected; nothing in lungs.

I greatly regret to have lost my notices on post-mortem examinations, as they would have been of great interest, and proven the correctness of my diagnosis in all the above cases. I can clearly remember to have found a good many horses with old, cicatrised ulcers in the nasal cavity, and will add that nearly all the glandered horses had a collection in one, two or all three sinuses of the same side.

The symptoms generally noticed first on these glandered horses, was a swollen gland; exceptionally the nasal discharge was preceding the glanding a few days.

As to the effect of the treatment described in this article, I must certainly acknowledge that it has given a very good satisfaction, when applied to the horses of this company. I never had an opportunity to try it on other horses placed in different circumstances. The main difficulty to obtain such an experience is found in the want of time, place and perseverance, which I had at my full disposition in this company, although I was never given a chance to continue the administration of arsenic to such horses as had improved so well by it, that the symptoms of glanders had entirely disappeared externally. This was due to an impossibility, or rather the unwillingness of the foreman to leave these horses at my disposition for a longer time, after they were again able to work, or at least judged to be so, although the majority of them could not stand heavy work, fatigue and change of temperature, which is sufficiently proven by the frequent and early relapses until death occurred. And indeed, is it not presumable that glandered deposits or formations which might take place in lungs, or any other viscera, require a longer time to be resorbed than nasal or cutaneous ulcers would need to heal up? And it is just after all the external symptoms have disappeared, that a continuation of arsenic would in all probability act on the glands and internal organs, and effect a more complete cure, if possible.

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I never considered such horses as cured of glanders, when no more symptoms of the disease could be discovered externally; for the germ of the disease is still existing in the body, in the blood, and is liable to burst out again under the effect of a cold chill, or of a fever from any cause, traumatic, or not traumatic.

ACTINOMYKOSIS: A NEW INFECTIOUS DISEASE OF ANIMALS AND MANKIND.*

BY GEORGE FLEMING, F.R.C.V.S., ARMY VETERINARY INSPECTOR.

(From the *Veterinary Journal*.)

THE progress of pathological research is continually demonstrating the mighty part played by microscopic vegetable organisms in the production of disease in plants and animals, generally leading to their destruction, and with more or less rapidity. The feeblest and smallest, as well as the largest and most powerful, are alike exposed to the ravages of these invading, relentless foes, whose attack is all the more destructive because it nearly always cannot be detected at its onset; and their extreme minuteness and tenuity, as well as their insidious and obscure manner of operating, are also so many barriers to timely recognition and protective measures against their assaults.

The immense destruction caused by minute parasitic fungi upon cereal and other useful plants, is only too often experienced by agriculturists and others. The mildew of the wheat, for instance, arises from the attack of a small fungus—the *Puccinia graminis*. When this little pest becomes multiplied to a great extent, it gives rise to most serious consequences. The disease called "Smut," attacking the flower of the wheat, is the produce of a minute parasite—the *Uredo segetum*; while the "Bunt," or disease involving the seed itself, is caused by another parasitic microscopical fungus—the *Uredo fetida*—which, as soon as it enters the grain, completely fills it, and replaces the flour by a black, dis-

*A portion of this paper was read, and morbid specimens, drawings, and microscopical preparations exhibited, at the meeting of the Southern Counties Veterinary Medical Association, on October 30th, 1882.

gusting, fetid powder, consisting of minute balls, four millions of which may exist in a single grain. The disease which attacks rye and other grain, called "Ergot" or "Cock's-spur," is produced by a like minute fungus—the *Spermædia clavus*; that attacking the potato—the *Botrytis infestus*; that destroying the different species of *Allium*, as the onion—*Botrytis destructor*; and many other destroying fungi, whose existence in plants can only be realized by their ravages, and their presence by means of the microscope, are known to those who have made them a special study.

The lowest, as well as the highest animals, are similarly the victims of these almost impalpable organisms. There is not a creature, probably, which may not afford scope for their baneful action. The disease called "Muscardine," in the silkworm, is produced by the "balsoma" or *Botrytis Bassiana*, and several species of caterpillars are affected in the same way; indeed, some of these fungi of caterpillars completely transform the bodies of these into their own substance. Then we have the fungi which grow upon or within the bodies of man and wild and domesticated animals, and cause troublesome, very often serious, and only too frequently fatal disorders. The wonderful revelations which have been made by means of the microscope, lead us to believe that those diseases which are included in the group designated "zymotic," owe their production to vegetable germs; and other maladies not comprised in this class have already been discovered to be due to these microphytes—for instance, anthrax, tuberculosis, swine-plague, rabies, fowl-cholera, leprosy, etc.

Yearly the list of diseases evidently due to *microbes*, or "germs"—as they are commonly designated—is added to; and whether these germs consist of simple forms, such as special *micrococci* or *pacilli*, or more complex organisms, yet by culture and inoculation-experiments their part in the pathogenesis of certain maladies, can be no longer doubted.

Whether these fungi invade plants or animals—whether they attack the simplest or the most complex organizations—the tendency of their action is always the same—degeneration and disintegration.

The object of this paper is to bring to notice another addition

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to the list of microphytes which prove to be veritable scourges to animals, and are productive of loss to the community.

For the last two years, the pages of the *Veterinary Journal* have been more or less occupied with the descriptions and discussion of a disease chiefly affecting bovine animals, more particularly those of a juvenile age, and which has been by the majority of writers designated "Tubercular Stomatitis," evidently from the character of the lesions and its chiefly affecting the mouth; while by a few it has received other designations, and its tubercular nature has been denied.

The same malady has received some attention at other times among veterinary surgeons in this country, but nothing has been published as to its pathology.*

Though it is probable that two or more diseases have been included in this discussion, yet with regard to that which received the before-mentioned designation, there were some veterinary surgeons—myself included—who, for several reasons, were inclined to doubt its being allied to, or identical with, tuberculosis; and as the question was one of some importance, from a sanitary and pathological point of view, an attempt was made to decide it by appealing to those practitioners who had the opportunity, to forward specimens of the disease to the Brown Institution for examination.

Several members of the profession obligingly complied with the request; but the only specimen which arrived in a satisfactory condition was the tongue of a steer forwarded in May last, by Mr. James, M.R.C.V.S., Thornbury, Gloucestershire. The animal from which the organ had been obtained was, as Mr. James subsequently informed me, one of five affected with this so-called tubercular stomatitis, the others having been successfully sub-

*There are a few notes on what may have been this malady, by Professor Axe, in the *Veterinarian* for 1877, pp. 605, 759, but they are merely quotations, and throw no light whatever on the disease. Up to the present time, the views entertained with regard to it are fairly represented in the opinion of the late Professor of Cattle Pathology at the Royal Veterinary College, who, in the course of some remarks on what would appear to have been a case of this affection, and which was designated "Schirrus Tongue," states that "the causes of schirrus are obscure, but they are evidently of a constitutional nature, as the disease is generally insidious in its attack, gradual in its development, and fatal in its consequences."

mitted to surgical treatment. The steer had not received much attention—the tongue having only been dressed a few times—as it was a two year old animal, and the owner thought he would rather have it slaughtered before it lost condition.

The tongue was in good preservation when it reached the Brown Institution, and when I saw it an examination had been made of it by Dr. Roy, director of, and Mr. Garside, M.R.C.V.S., then veterinary surgeon to, that valuable establishment. The appearance of the organ was somewhat curious and very unusual, and it was evident—almost at a glance—that it was affected with something very different to tuberculosis. In the first place, it appeared to be considerably increased in size, and in texture it was very dense; indeed the term rigid might have been appropriately applied to it. A transverse section through its middle third exhibited the muscular tissue pale in color, its fibres indistinct, and looking as if undergoing degeneration; while interspersed closely throughout the entire mass were myriads of small, light yellow, dense nodules, rather firm in consistence, for the most part perfectly distinct from each other, and varying in size from the dimensions of a pin's head to that of a millet seed or filbert. Here and there two or more of these nodules had evidently coalesced to form larger masses, and the section already mentioned had been made through a somewhat extensive patch, which looked as if in process of softening, and the tissues immediately surrounding it were ulcerating. This softening mass, which was somewhat caseous, might have been mistaken for tuberculous deposit; but to those who are familiar with the lesions of tuberculosis, it would have been scarcely possible to make such a mistake in this instance, after a careful inspection of sections in different parts of the organ.

Mr. Garside had made the following notes in regard to it;

"The tongue weighed eleven pounds (5994 grammes). About seven inches from the tip it becomes suddenly enlarged. The enlargement extends to the fauces, and is hard and firm to the touch, resembling cartilage in consistence. Length 8 inches, depth 5 inches. The surface shows variously-sized ulcerations, not very deep, and looking as if punched out. In some parts the

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mucous membrane is purple in color, mottled by the presence of still darker spots, which look like blood extravasations. The thickening does not feel nodular, but uniform; and it is evident that the mucous membrane is thickened by infiltration of the submucous tissue. On making a longitudinal section of the enlargement, it is seen to be pale in color, inclining to a yellowish-red. Scattered throughout are a number of nodules, varying in size from that of a pin's head to a hazel nut. Some are isolated, others in groups of two and three. They project above the cut surface. They are white in color, and their margins are generally well-defined. In some instances they are surrounded by a capsule of connective tissue. Although present throughout the whole of the section, they are far more numerous towards the surface of the tongue, being contained within a zone of an inch and a half from the surface. They are of all shapes, but the smaller ones are mostly round. The nodules are also contained in the submucous tissues.

"In addition to these projecting nodules, are a number of variously-sized white patches, generally streaky, which look like hypertrophied intermuscular connective tissue. The nodules are also scattered throughout the muscular tissue. On the under surface of the tip of the tongue, there is seen through the mucous membrane a patch made up of yellowish nodules."

Mr. Garside's microscopical examination of the nodules at first led him to consider them crystals—a mistake easily made.

If the disease affecting this tongue was not tuberculosis, then the question arose, What was it? Mr. James, who had sent the specimen, had in his communications to the *Veterinary Journal*, spoken of it as a somewhat common, and certainly a very serious malady in his district, among calves and young bovine stock, though adult animals did not escape its ravages. It was, therefore, of great moment to discover its nature.

As I have already said, Mr. Garside, from the density of the nodules, at first thought they were crystals, and calcareous in composition, and accordingly tested them with acids, but he concluded they were not composed of lime salts.

With much care, and after the exercise of a considerable

amount of patience, it was subsequently found by Dr. Roy and Mr. Garside that the nodules were found to offer a definite structure under the microscope, and when the higher magnifying powers of the instrument were employed, the presence of a peculiar minute fungus was detected, the mycelium developing, or being arranged in, a novel manner, each nodule being mainly constituted by a cluster or conglomeration of fungi or fungus elements, differing in arrangement and appearance from anything hitherto noted among entophytes infesting animals.

This was recognised as the *Actinomyces*, a fungus which has been discovered in certain morbid conditions of mankind and animals in Germany and Italy.

It now dawned upon me that we had to do with a particular disease, the pathology of which has only been elucidated within a few years, and which is referred to in the *Veterinary Journal* for January (p. 60, "Sarcoma in Oxen") and April (p. 256, "A New Vegetable Parasite causing Disease in Cattle"), 1879.

Mr. James has quite recently, at my earnest solicitation, forwarded three additional specimens of the disease—portions of two heads, and a tongue. I shall notice the former first, as they are the most interesting and important, and give the clinical history of the cases, for which I am also indebted to Mr. James. The specimens were two bovines—a steer and a heifer—each about a year and a half old. The heifer was first attacked about three months before. The symptoms were: swelling of the upper lip and nose, and the appearance of a "red place" about two or three inches from the anterior nares—this place resembling a *boil* on the human skin. Some dressing was sent, and this was applied two or three times a week. Mr. James did not see the animal again for two or three weeks, when he was requested to inspect it again, as it was very much worse. He found the upper lip much more tumefied and very hard, and the disease extending up the nasal chambers, the little masses or "tubercles" being very characteristic. On his next visit he observed that the disorder had been checked, and it was kept in this condition for about a month. It then began to extend again, and all efforts to overcome it were fruitless. Dressings appeared to have no effect on it, and there

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was great difficulty experienced in properly syringing the nasal cavities. From this time the malady continued to gain ground, the growths developing so rapidly as almost to fill the nostrils. The animal was greatly distressed in breathing, throwing up its nose, and snorting and roaring in its efforts to respire. It was destroyed. Neither mouth nor tongue was involved in this case.

A few weeks after the heifer became affected, the farmer requested Mr. James to see a steer as quickly as possible, as it had the same disease, and he was afraid his other stock would be involved, particularly the milch cows, in the "distemper." On examination, Mr. James discovered the roof of the mouth to be the seat of the malady, the greater part of it being "abraded." The nose did not appear to be implicated then, nor for some time afterwards. The disease yielded to treatment, and rapid progress was made towards recovery. But soon it attacked the upper lip and nose, precisely as in the other case, though not so seriously. This animal was killed at the same time as the heifer, the owner being afraid his cows would catch it.

These animals, with several more, had been sent away from the home farm to graze on some poor undrained land. The specimens, when they arrived in London, were found to have been much mutilated by the butcher. The nasal bones had been removed from one head, and only the superior maxilla, premaxilla, turbinated, ethmoid, and palatine bones remained. The mucous membrane lining the nasal fossæ and covering the turbinated bones, was studded by various-sized, light-yellow, isolated little masses, like warts or small raspberries in outline. During life these nodular-looking bodies must have greatly obstructed the breathing. The only portions of the other head sent for inspection were the nose and the upper lip. The latter was much thickened and indurated, and small shot-like masses could be felt through the mucous membrane lining it.

The tongue specimen was from a two-year old steer. The anterior part of the organ, to an extent of five or six inches, was extremely indurated, and numbers of the yellow nodules, small in size, were scattered through the submucous and muscular tissues. This case was a very mild one of the disease.

A microscopical examination of the nodules from the mucous membrane of the nose, by Mr. Batt, M.R.C.V.S., of the Brown Institution, revealed the existence of myriads of the vegetable organism designated *Actinomyces*, each nodule or mass being made up of a number of smaller nodules, these individually containing nests of felted fungi. Each cluster of the *Actinomyces* had the characteristic daisy-like outline and radiating lines springing from a somewhat dark centre, which will be hereafter alluded to, and which was such a marked feature in the specimens found in the first-described tongue.

These specimens, then, exhibited the same characteristic fungus elements and pathological features as the tongue, and leave no doubt whatever as to the nature of the malady which is reported to be so widely prevalent in Gloucestershire, and, from report, in other parts of England, as well as in Scotland and Ireland, and prove its non-identity with tuberculosis.

The great importance and interest which attaches to this disease, have, therefore, induced me to bring it to the notice of the veterinary and medical professions in this country, as its nature has not hitherto been suspected, though by various names it has probably been known as a destructive disorder among cattle and other animals from time immemorial; and though its presence has not hitherto been signalized in our own species in these islands, yet that it may not unfrequently occur there is every reason to believe, when we now know how prevalent it is among our cattle, and that cases affecting mankind have been recorded in Continental medical literature.

HISTORY.

As already stated, so far as the pathology of this malady is concerned, it is a new disease, as until its histological characters were discovered, we were in ignorance of its nature. For a very long period, and especially in Germany, it had been observed that the ox tribe was affected with a certain disease, or diseases, of the bones and soft tissues of the head, which received various popular names by agriculturists and dairy people, whose cattle were so frequently victims to it. In Germany the disease of the bones

was known as "Hohlgebacken," "Hohlwulst," while in the north it was specially called "Hohlgebacken" applied.

Among the diseases of the tongue, it was looked upon as a form of tuberculosis, osteomyelitis, and was supposed to be a form of the tongue disease, the tissues being affected by a serofulous process.

In Italy it was especially known as "Cancro faringeo," and was farcical in its nature when affected with the disease (toad), *truttina*. In this country it exists, and is a pathology of the tongue, a tubercle, and many other diseases have been recorded as affections.

In 1871, which, he said, consisted in the upper or lower jaw, from the spine, growing in the muscles, in the

*Reference to the literature of the

was known as "Ladendruck," "Ladengeschwulst," "Dickersbacken," "Krebsbacken," "Bäckel," "Kimbeule," "Kiefergeschwulst," "Knochenkrebs," "Knockenwurm," "Winddorn," etc.; while when the tongue or other soft tissues in the mouth were specially involved, the terms "Holzzunge" (wooden tongue), "Hohlgeschwulste," "Schlundbeulen," "Wurm," etc., were applied.

Among veterinarians in Germany, the disease of the bones was looked upon as osteosarcoma, spina ventosa, bone tuberculosis, osteoporosis, hyperostosis, etc., while the tongue affection was supposed to be tuberculosis, chronic interstitial glossitis, tongue degeneration, sarcomatosis, etc., the affection in other soft tissues being considered either as lymphomatous, fibromatous, scrofulous, or scrofulo-tuberculous.

In Italy, where the disease appears to be very prevalent, especially in the plains of Ferrara and in the Maremma of Tuscany, it was popularly considered to be a kind of glanders and farcy of bovines, sometimes looked upon as tuberculous, and when affecting the tongue was named the *mal del rospo* (*rospo*—toad), *trutta* (thrash), or tuberculosis of the tongue.

In this country, as already remarked, the disease undoubtedly exists, and in all probability widely and frequently; though its pathology has not hitherto been ascertained. Under the designation of scrofula, tuberculosis, tubercular stomatitis, miliary tubercle, schirrus tongue, glossitis, osteosarcoma, osteoporosis, and many other names, there is every reason to think that this disease has been included in the descriptions of these various affections.

In 1877, Bollinger* drew attention to a disease of cattle which, he asserted, was not unfrequent among them, and which consisted in a kind of new-formation tumor, that appeared on the upper or lower jaw, in the alveoli of the molar teeth, or sprang from the spongy tissue of the bones, displaced the teeth, and in growing invaded and destroyed the healthy tissues—bones, muscles, mucous membrane and skin, appearing externally, or in

*References will be found at the end of this paper, when treating of the literature of the subject.

the mouth or palatine sinus. The bones, when macerated, looked like pumice-stone, modified through central osteoporosis and external hyperostosis. After some time the round, conglomerate, luxuriant growths generally became puriform or ichorous, and ulcerated, producing abscesses and fistulæ, and sometimes increased to the size of a child's head. The progress of the disease was gradual, and interfered with mastication when it had advanced to a certain stage; this led to emaciation, and to prevent loss from this cause the owners of the cattle generally had them destroyed before this stage was reached. In examining fresh tumors, Bollinger discovered (in three cases) amongst the dense connective tissue, conglomerate masses or nodules of various sizes, from that of a walnut to a hen's egg, of soft consistence, pale yellow color, and moist appearance, which on section showed a turbid, whitish-yellow puriform contents; or the nodules were of a spongy texture, in the fine stroma of which were numerous spaces about the dimensions of a hemp-seed, containing a dull-yellow, thick, or cheesy-like substance. In scraping a section of an old or young nodule, this substance was easily removed. Microscopically, the tumors appeared to be composed for the greater part of old or embryo granulation tissue, which had a kind of sarcomatous structure, while the cheesy substance consisted of pus-corpuscles, granulation and granular cells, as well as fatty granular *detritus*; in addition, the latter contained innumerable, various-sized bodies, which were opaque, of a faint yellow tint, often somewhat mulberry shaped in outline, and here and there encrusted with lime salts. This was recognised as a real fungus, but at first no pathological importance was attached to its presence, and the disease was simply named "jaw-osteosarcoma."

Besides this noteworthy form, which appeared to have its origin in the invasion of the alveoli by the fungus, the tongue of the ox presented another form, proper to itself. Imbedded in the parenchyma of the organ, Bollinger found a greater or lesser number of nodular-looking bodies, the majority of which were as large as a millet or hemp-seed, and some as big as a cherry or walnut; many stood prominently from the surface of the mucous membrane. When fresh, they were mostly white or greyish-

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white, diaphanous, moist-looking, very soon becoming turbid or undergoing puriform softening, and vacating their connective tissue capsule. When these nodules were on the upper surface of the tongue, destruction of the mucous membrane, erosion, ulceration and cicatrization took place; while in the parenchyma of the tongue, a secondary interstitial glossitis became developed, when there was partial atrophy of the muscular fasciculi, and a marked enlargement and wood-like induration of the organ.

The disease, when in the jaws, was not uncommon in old cattle, developing itself in a few weeks, and was nearly always incurable; the animals would survive for a month, or even a year, until the difficulty of eating, because of the diseased jaw or enlarged tongue, produced emaciation and debility, and the animal was slaughtered. In the nodules of the tongue, as in the jaw, the microscopical fungus was constantly present.* That the tongue disease was not rare, was evidenced by the fact that in one year Bollinger had no fewer than six specimens sent to him from various parts of Bavaria; while in five preparations he had in spirit, he found the fungus. He not only discovered this fungus in the centre of the nodules, but also in the sub-maxillary lymphatic glands of the tongue, as well as in the tracheal lymphatic glands. He found these glands greatly enlarged, and studded with grey and dull-yellowish spongy nodules, in the interior of which he found immense numbers of the fungus. The fungus was likewise discovered in a series of new-formation tumors which cows are very liable to, in the pharynx and larynx, as well as in the mucous membrane of the stomach. In the two former situations, these tumors appear as polypi and sub-mucous new formations, and these had received such names as lymphoma, throat-tumor, fibroma, tuberculosis, scrofula, etc.† In all these tumors (ten of which he had preserved in spirits of wine), the section was always more or less of a spongy character, and when the puriform or cheesy matter contained in the numerous small

*These organisms had been observed for several years (1870) by Professor Hahn, of the Munich Veterinary School, but he had not attached sufficient importance to them.

†Bollinger notes that in some parts of North Germany, five per cent. of the cattle are affected with these throat tumors.

inter-spaces of their structure was examined microscopically, enormous quantities of the same endophyte were found as had been discovered in the jaw tumors and the so-called "wooden-tongue."

Besides all these, in the tumors of cattle which the German farmers and dairymen named "throat-boils" (*schlundbeulen*), and which appear in the vicinity of the parotid gland, larynx, and pharynx, and apparently have some relationship to the jaw tumors, the same nodules and organisms are found; they may be derived from the lymphatic glands in their neighborhood. In a case of supposed fibroid in the second compartment of a cow's stomach, the tumor being about the size of a man's fist and of a spongy nature, the fungus was found by Bollinger; as well as at the base of a gastric ulcer which was mistakenly supposed to be of a tuberculous character.

In fixing upon this endophyte as the cause of the disease, through its destructive nature, and its tendency to produce new-formation growths (in this respect resembling the *Chionophye Carteri*, which causes the "madura-foot" of the natives of India), Bollinger makes some remarks on the fungus, which had been carefully studied by the professor of botany at the Munich Veterinary School, Dr. Harz, who obtained it from fresh specimens. The fungus found in the tumors from cattle form globular drussy tufts, from 0.11 millimetre in diameter. The majority of these tufts are aggregated in mulberry-shaped masses of from 0.5 to 1 millimeter in diameter, and appear to the unaided eye as very minute dull-white granules. Very frequently the tufts are somewhat calcareous, and then it is difficult to make out their composition; it is the same when they have become altered by lying for some time in alcohol. By a slight pressure made upon it, the fungus tuft is considerably altered in appearance, and mostly assumes the shape of a spheroidal segment, wherein some of the organisms can be distinctly traced throughout. The latter commence at the pointed end of the mass, with a somewhat cone-shaped base-cell, which may possibly represent the non-apparent mycelium, and which bears a large number of short-stalked hyphens. The end of the hyphen shows the Gonidiæ, which are,

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like the hyphen itself, polymorphous, and of an oval, globular or elongated form. From the expanded end of the Gonidiæ are developed a number of young shoots or sprigs, and from each Gonidium arises an individual; so that a number of Gonidiæ together give rise to a mulberry-shaped colony; and this is the usual form in which the clusters of fungi appear, though sometimes here and there are found apparently stunted or abortive groups.

The fungus, in fact, is allied in many respects to the common green mould (*Penicillium glaucum*) which grows on jam, paste, damp leather, etc., and is therefore very far from being one of the lowest of the group to which it belongs. The individual plant, in reality, consists of a conical mass of branched filaments springing from a single cell, and bearing on their short terminal branchlets the spores or *Conidia*, by which the mould is produced.

From the radiating structure of this micro-entophyte, and its being found at first in the ox tribe, it was named *Actinomyces* (a ray, a mushroom or fungus) *bovis*. This, Bollinger asserted, was the first instance in which a fungus belonging to the class of moulds had been found in the interior of animal tissues, such as the bones. The designation of actinomykosis (mykosis, a fungus) was given to the disease, following the example of previous pathologists—such as Alibert, who applied the term mykosis to the affection in mankind known as *Frambæsia* (the *Molluscum contagiosum*, for instance, due to a vegetable parasite, and which he designated *Mycosis fungoides*).

Zippelius of Obernburg (Lower Franconia) informed Bollinger that, in the course of ten years, he had noted not fewer than 254 cases of lymphoma in the vicinity of the larynx and pharynx, in addition to 157 cases of jaw tumors in cattle: and Bollinger was of opinion that the majority of the first, and probably all of the second, were due to this fungus. Zippelius had also seen both forms of the disease in goats and swine, though much seldomer than in cattle. Veterinary literature also contained a number of cases of these tumors in goats and oxen; and Bollinger suspected that they would likewise be found to exist in sheep and other animals.

In other parts of Franconia, Professor Franck has found the tumors in the region of the throat so common, that among cattle owners, whenever an animal began to lose condition, it was said to have a "growth" (*gewächs*) in its throat. Even while Bollinger was writing his paper on the disease, he received a tumor from a veterinary surgeon in Pfalz, which was as large as a fist, and which he had removed from the pharynx of a two-year bull.

For some time previously the animal could not eat, appeared to suffer great pain, coughed, and so rapidly lost condition that it had to be slaughtered. In the pharyngeal cavity this tumor was found just above the larynx. It was spongy in texture, and in the meshes of the fibrous framework was a puriform fluid containing the characteristic fungus in immense quantity. The spongy character of this granulation-tumor was so marked, that the unaided eye might have discovered its mykotic origin.

Bollinger's observations attracted much attention on the Continent, as I have already stated. I gave a brief abstract of them in the *Veterinary Journal* for 1879 (Vol. VIII. p. 256), with the view of discovering whether the disease had been noticed in this country.

Their publication in Italy elicited the fact that Professor Rivolta, of the Turin Veterinary School, had already published a paper in the *Veterinary Journal* of that city, so long ago as 1868, on a sarcomato-fibrous tumor on the lower jaw of an ox; and after that date, in 1875, Professor Perroncito, of the Turin Veterinary School, had an article in the "Enciclopedia Agraria Italiana," on "The osteosarcomata of the upper or lower jaws of cattle," in which he describes, among other microscopical objects found in the round and giant-cell sarcomata, cryptogamic bodies in conglomerations, which were made more distinctly visible by treating them with dilute hydrochloric acid, which dissolved the lime salts surrounding them. According to Israel, Langenbeck, the famous German surgeon, had, years previously, described and delineated the fungus, which he found in the pus from a deep-seated vertebral abscess in a man in the hospital at Kiel; but some doubt is thrown upon the correctness of this statement.

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nodules very accurately, and pointed out that the vegetable organisms were not crystals, but minute fungi, which were not soluble in water, alcohol, solutions of potass, or sulphuric or hydrochloric acids, etc.: the nodules were, in fact, discoid tufts (*cespugli discoidi*), composed of branching rods; these tufts were of unequal volume, and the nodules were the size of a poppy-seed.

In 1878, Siedamgrotzky, of the Dresden Veterinary School, furnished conclusive evidence of the correctness of Bollinger's descriptions and conclusions. In multiple sarcomata from the mucous-membrane of the pharynx of oxen, as well as a tumor from the lower jaw of a cow, obtained fresh, he found the *Actinomyces* described by Bollinger; but he was unsuccessful in cultivating it, or inoculating animals with it. In the same year, Israel published a case of what he designated "Chronic Pyæmia," occurring in man, in which the fungus was found, and its identity with that of the bovine species was subsequently established.

After this date, several German and Italian veterinarians record observations, all more or less interesting; while sixteen cases are reported by medical men in Germany. These I shall again refer to. In the meantime I will briefly sketch the symptoms of the disease, and mention the different situations and animals in which it has hitherto been observed.

Actinomykosis of the Tongue.

I have already stated that in this country, when the disease is present in the tongue, it is supposed to be schirrus, induration, glossitis, tuberculosis, cancer, etc.* Doubtless, all these morbid

*For instance, in "Steel's Diseases of the Ox" (p. 234), in treating of cancer of the tongue, it is stated: "In this disease the organ is the seat of small nodules of carcinomatous deposit, which more or less replace the proper substance of the organ, and some of them bulge beneath the mucous membrane of the dorsum. Some undergo softening, and the submaxillary and parotid lymphatic glands are generally involved through absorption of cancerous matter. This disease progresses slowly, and materially interferes with the development of the animal. It is incurable, and the flesh of cattle thus affected is not good meat, though always consumed. . . . Some authorities consider this disease scrofulous rather than a form of carcinoma."

states may exist without the presence of the *Actinomyces*, but I think I may be pardoned, from the specimens forwarded from Gloucestershire and the cases reported, if I ascribe the majority of the instances which occur of disease in the tongue to this microphyte. In South Germany, where interstitial glossitis or induration is very frequently reported, nearly all those examined have proved to be cases of actinomykosis. I have no doubt whatever that it is the same in this country. Take, for instance, the description given by Captain Russel, F.R.C.V.S., and we shall find actinomykosis of the tongue graphically delineated.

He writes, when treating of induration of the tongue in the ox—a disease very common in his practice in Lincolnshire: “I have observed that the disease commences with small patches of a yellow color, associated with thickening of the mucous membrane, sometimes on the dorsal surface, sometimes on the tip, and at others underneath the tongue, or on one or other of its sides. This thickening, in the course of a short time, breaks up into a number of small pimple-like excrescences, which soon become confluent. As the disease spreads, a cheesy deposit is thrown off, leaving a very red and angry-looking surface. Subsequently, the organ becomes hard and swollen, and eventually hangs from the mouth perfectly useless. The animal quickly loses the power of prehension and deglutition, and if not destroyed, usually succumbs to inanition. I do not find that either constitutional or local treatment is of any avail. Four years ago my attention was called to several cases, and this season I have seen as many as twenty. The progress of the malady is generally slow, the increase in size of the tongue being gradual; but as it progresses movement of the organ is diminished, and mastication is performed with corresponding difficulty. There are rarely any indications of severe inflammation noted, and this fact should differentiate the disease from glossitis, as should also the absence of the acute pain which marks the latter. Discoloration may be present here and there; indeed, this usually precedes ulceration.”

(*To be continued.*)

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OPERATION FOR OSCHEOCELE.

By H. F. JAMES—Student Ontario Veterinary College.

The other day I noticed in an American exchange, an article explaining the method of operating for scrotal hernia, and recommending what is usually known as the covered operation, viz., cutting through the scrotum, severing its connection with the tunica vaginalis, and placing the clamp on the cord, including, of course, the vaginal tunic. From the experience and teaching of Professor Smith, and my own slight acquaintance with the operation, I am of opinion that this method might be dispensed with in a great many instances, and would prefer the simpler procedure of returning the intestine, and enclosing scrotum and all under a clamp, this being placed as close to the ring as possible. Prof. Smith has repeatedly operated in this manner, with the happiest results. In one case, a stallion, the hernia was of great size, extending down two-thirds of the way to the hock. This animal was fed sparingly for a few days in order to relieve the intestines as much as possible. He was then cast and secured, and the bowels being returned to the abdominal cavity by careful manipulation, a 16-inch wooden clamp was placed close to the ring, including scrotum and cord. Scarcely any constitutional symptoms were shown. In a short time the parts sloughed off, and a perfect recovery was the result. In this case, especially, Professor Smith feels convinced that the covered operation would have been attended with unfavorable results. About the beginning of December, a grey draught gelding, five years old, was admitted to the hospital of the Ontario Veterinary College, with the object of being treated for bilateral scrotal hernia of some standing, and on the 10th of December he was brought out for operation, cast, and firmly secured. Professor Smith then proceeded, by manipulating the scrotum, to break down any adhesion which might have taken place, reducing the hernia, and applying a 10-inch plain wooden clamp on each side, further strengthening by putting a metallic skewer, secured by a figure 8 ligature, through the skin immediately below each clamp. One hour after the operation, he showed some little

uneasiness, but was relieved by a hypodermic injection of three grains of morphia. The only other medicinal treatment he received was a laxative dose of oil about a week after the operation. Slight phymosis was noticed one morning, which quickly yielded to moderate scarification, and the use of fomentations. The constitutional symptoms exhibited were very slight throughout. Temperature ranged from 99° to 103°, and pulse hardly varied from the normal. On the 28th of December, the included portions of scrotum sloughed off, leaving a healthy granulating surface, which has since entirely healed, and at date of writing, recovery is complete. The comparative rarity of scrotal hernia in the gelding renders this case somewhat interesting. Judging, therefore, from the success which attends this method of procedure, and the advantage it presents over the other mode of operation, inasmuch as it is more easily performed, and no cutting is required, thus avoiding the introduction of atmospheric germs, and other sources of irritation to the delicate structures of these parts; I would advise its substitution in the majority of cases, for the old covered operation, which, no matter how well or carefully performed, is followed in many instances by fatal results.

CLINICAL CHRONICLES.

BY A. LIAUTARD.

The peculiar weather which has lately prevailed over the United States has brought back amongst horses a form of disease with which many veterinary surgeons are familiar, *viz.*, cerebrospinal meningitis. Generally appearing in damp seasons, this disease assumes, at times, an epizootic form, which baffles the skill of the practitioner. As numerous cases have already made their appearance in this city, and though thus far of limited prevalence, and as it betrays a tendency to resume the form by which it was characterized several years ago, we have thought a reprint of part of an appendix to the book of Stonehenge on the Horse, published by G. Routledge, of London, written by Prof. A. Large, M.D., then Professor of Theory and Practice in the New

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York College of Veterinary Surgeons (in 1869), would prove to be interesting, but little having ever been written on the subject, and especially upon the prophylactic treatment, which has proved so successful in Dr. Large's hands, as well as in our own practice. The account of a fatal case which was observed in the hospital of the American Veterinary College is also given, from the pen of House Surgeon Fred. Saunders, D.V.S., who took charge of the patient in connection with Mr. C. Evans, Student.

CEREBRO-SPINAL MENINGITIS.

BY F. SAUNDERS, D.V.S., *House Surgeon.*

On the 9th of December, a bay gelding, eight years old, used for road purposes, was admitted to the hospital of the American Veterinary College, with the following history: On the previous Tuesday he was driven about five miles, doing his work apparently as well as usual. In the evening he refused his food, and supposing him to be suffering with sore throat, some stimulating liniment was applied to his neck by the foreman of the stable. On the next day, he left his breakfast, and refused to drink, and was left alone until Saturday, when medical aid was sent for. When first seen he was found in the above condition, temperature, 101°; pulse, 80; respiration, 18. On account of the state of the patient, and the prospect of a fatal termination, it was advised to send him to the hospital before the disease had sufficiently progressed to preclude his removal.

When he arrived there he was placed in a box stall, and after a little time, I examined him. His temperature had risen to 104°; pulse, 90; respiration, 20. There was an abundant foaming discharge from both nostrils, quite offensive. A pail of water being placed before him, he would endeavor to drink, putting his nose into the pail, and trying to swallow, but without any result. Measurement was taken of the water before and after it had been left before him for some time, and it remained the same in quantity in both cases. On introducing the hand back into the mouth, the soft palate was found flabby, and the hand dropping into the pharynx did not give rise to any contraction of that organ. The throat was somewhat painful upon pressure. On examination of

the eyes with the ophthalmoscope, the pupils were found dilated, and the fundus of the eye highly congested by the choroid vessels, especially that of the right eye, the smaller arteries being easily traced out.

In view of these symptoms, the difficulty of deglutition, and principally, of the condition of the eyes, I made a diagnosis of cerebro-spinal meningitis. This was the third case which I had recently met with in my out-door practice.

A severe blister was applied over the throat, and a hypodermic injection of strychnine and atropin given every six hours.

At 12 m. the temperature had fallen to 101° ; the pulse had risen to 120; the respiration to 30—he is in the same condition.

On the morning of the 10th there was no change, excepting that he seemed to be partially blind. The same treatment was followed—he was fed by rectum during the day. In the evening of that day he becomes very uneasy and delirious. At 8 A. M. he went down to rise no more, his pulse becoming faint and scarcely perceptible, and the breathing stertorous. At 9 A. M. he died, after passing into a comatose condition.

Post mortem, made the next morning, the head and the brain being the principal parts examined: The encephalic mass weighed $28\frac{1}{2}$ ounces, and was much softened and congested. The pituitary gland was blackened and the meninges highly congested, with effusion under the arachnoid spaces, as well as in all the ventricles. The choroid plexus was also congested; the hippocampi seem apparently enlarged, black and softened. The corpus callosum was quite soft, the cervical portion of the spinal cord very much injected, and the sub-arachnoid space filled with serosity. The examination of the throat showed a small collection of pus at the base of the epiglottic cartilage. The fauces and the pharyngeal mucous membrane were of a very dark color and gangrenous appearance. The other organs were apparently healthy.

In his excellent little work on "Tumors of the Bladder," Prof. Stein publishes statistics, showing the rarity of cancerous growths of that organ in human subjects. In our investigations in

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veterinary literature we fail to discover the reports of more than a few cases, which however, scarcely prove that they are not as rare in animals. That they may exist and have been observed, is an evident fact, and it is to assist in the investigation of others, and to record an interesting case of comparative pathology, that the following case is published, incomplete as it is.

CARCINOMA OF THE BLADDER.

BY J. KEMP, JR., D.V.S., House Surgeon.

During last summer there was admitted to the hospital a gray gelding, 14 years old, 15½ hands high, with the history that he had great difficulty in urinating, and exhibited symptoms of pain during the act. Small quantities of urine were frequently voided, after considerable straining on the part of the animal. It was also noticed that the urine was bloody, sometimes of a bright red color, at others intermixed with streaks of grayish matter. The horse had always fed well, and had done his work regularly up to within a few days of his admission to the hospital. At this time he presented the appearance of an aged animal, in a somewhat anæmic condition—*i. e.*, he moved about in a dull, listless manner; temperature normal; pulse weak; mucous membrane pale and of a slightly yellowish tint. The animal did not seem to suffer any pain, and a casual observer would notice nothing but the frequent attempts at micturition and the dark colored urine.

Upon rectal examination, the bladder was found to be two-thirds full. At the fundus it presented the normal fluctuating condition, but toward the neck became hard and dense, at first giving an impression that it was filled with a firm, resisting substance. This was especially noticeable in the neck. At the quadrifurcation of the posterior aorta, on the right side, could be felt two hard, resisting tumors, each about the size of a pigeon's egg. Numerous tumors, of the same size and consistency, could be felt suspended from the mesentery, and on the lateral surfaces of the pelvic cavity. It was just possible to reach the right kidney, which seemed very tender on pressure, though no enlargement was made out. With a view of ascertaining where the blood came from, an attempt was made to wash out the bladder. A

catheter was introduced, and about six ounces of coffee-colored urine escaped, when it ceased to run. Upon removal, the catheter was found to be obstructed by coagulated blood and concretions of muco-purulent matter. Twelve ounces of tepid water were injected into the bladder, very little of which could be removed, owing to repeated obstruction of the catheter. The little that was removed had a very foetid odor.

It was decided to explore the bladder, and, with this in view, the operation of urethrotomy was performed. The horse was placed in a standing position in the stocks, and a flexible catheter was introduced. An incision was then made in the perinæum on the median line into the urethra. The catheter was then removed, and by digital exploration the obstruction could be distinctly felt. The urethral canal, in its membranous portion, had been so narrowed as to scarcely admit the little finger. The endoscope showed it to be completely obstructed at its prostatic portion, not alone by the new growth from its walls, but by the mass of floating substance within the bladder.

A diagnosis having been made of carcinomatous growth, involving the mucous lining of the bladder and urethra, it was decided to destroy the animal, which was done on the following day. In the post mortem great care was taken to remove the urinary apparatus complete. The penis was dissected back, the floor of the pelvis sawn through and removed, and the kidneys, ureters, bladder and urethra were removed intact. Several small tumors found on the mesentery and posterior aorta were reserved for microscopic examination.

The left kidney was slightly enlarged, weighing twenty-six ounces. Its capsule was readily removed, and externally it presented a normal appearance. When cut, it was found to be somewhat softened.

The right kidney was very much enlarged, weighing ninety-four ounces. Its capsule was so closely adherent as to render its removal impossible. When cut into, it was found to be much softened, pale in color, especially round the pelvis, where it was partly broken down. The ureter was enormously distended with muco-purulent urine, of a gelatinous consistency, which also com-

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pletely filled the pelvis, and could readily be pressed from the uriniferous tubes. The ureter of the right side measured three inches in circumference, while that of the left was normal in appearance.

The bladder was found to be two-thirds full. When opened by a longitudinal incision, it was found that a cancerous growth had involved the posterior two-thirds of the bladder, completely obstructing the orifice of the right ureter, and very nearly that of the urethra. The new growth seemed to be arranged in longitudinal rugæ, and was highly vascular in appearance. There was very little fluid in the bladder, it being nearly filled with what the microscope proved to be concretions of pus cells intermixed with great quantities of epithelium and blood clots. The prostatic and membranous portions of the urethra were also involved, and the mucous membrane was much thickened and dark in color.

Portions of both kidneys and the bladder, together with several of the tumors found in the abdominal cavity were preserved in Müller's fluid for microscopical examination, which will be published at a later period.

When the long bones are the subjects of fracture, and the injury takes place in the course of a blood vessel lying directly on it, it is not rare to see as a complication of the primary lesion a tearing of the artery, giving rise to deep hemorrhage, which is accompanied by enormous swelling of the parts. Still, it is not common to find that either of the lesions is likely to be necessarily fatal by itself; the practitioner, however, will do well to remember that such a result may be anticipated if the laceration takes place upon a blood vessel, where the coagulation of the blood is not likely to close it up, and where the blood, being allowed to flow and accumulate in a large cavity, the animal may die in a short time from internal hemorrhage. The case which we publish from the record book of Dr. Kemp illustrates this possibility, and will serve to put the veterinarian on his guard as to the fatal prognosis he may be called upon to give in a case of fracture of a bone closely connected with blood vessels of even medium size.

FRACTURE OF THE EXTERNAL ANGLE OF THE ILIUM CAUSING FATAL HEMORRHAGE.

BY THE SAME.

At four o'clock in the afternoon of the 5th-inst., a brown gelding, twelve years of age, was brought to the hospital with the following history: Two hours previous, while crossing the river in a ferryboat, he had slipped and fallen on the near side. The harness was removed, and he rose to his feet with difficulty, standing on three legs and manifesting great pain. He was immediately walked up to the hospital, a distance of about two miles. At this time the near hind leg was carried in extreme extension, resembling somewhat the position assumed in dislocation of the patella. The fetlock was flexed and the toe rested on the ground, while the entire limb was lifted up and down incessantly. The body was covered with perspiration, and the countenance wore an anxious expression. The horse was very reluctant to move; but when forced to do so, would bring the near hind leg slightly forward, and bear considerable weight upon it in walking.

The crural region of the left side was surrounded by an enormous swelling, extending from the external angle of the ilium to the patella. Rectal examination revealed nothing but a violent throbbing of the iliac arteries. The distance between the croup and the external angle of the ilium was slightly diminished on the left side. No crepitation could be detected, and treatment was adopted calculated to reduce the swelling prior to making a positive diagnosis as to the location of the fracture. The horse was placed in slings, but soon became so violent that they were removed, and he was allowed to lie down. He sank rapidly during the night, and died before morning.

Upon removal of the skin, the cellular tissue of the entire leg was found to be infiltrated with blood. A large quantity of coagulated blood was found in the areolar tissue of the flank, inguinal region and abdominal cavity. Proceeding upward, it was discovered that he had sustained a fracture of the external angle of the ilium, and a laceration right across the ilio-muscular artery, from which a fatal hemorrhage had resulted.

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Looking at the coxa from above, it would appear that the fracture had involved merely the tuberosity of the ilium, its superior face being perfect. Upon examining its inferior face, however, the true extent of the injury was readily seen. A large piece of the iliac surface was included in the fracture, so that the whole resembled an isosceles triangle, the base of which was formed by the tuberosity, while the apex extended to the middle of the inferior face of the ilium. As the ilio-muscular artery passed directly over the apex of the triangle, the lateral borders of which were very sharp, it is readily seen how the laceration occurred.

CEREBRO-SPINAL MENINGITIS.*

BY PROF. A. LARGE, M.D., M.R.C.V.S.

The object of this Appendix is, to give a brief description of several diseases of Horses not mentioned in the body of the work, and inasmuch as they are not alluded to in foreign works on veterinary subjects, they may be looked upon as *indigenous*, or *peculiar* to this country.

In the vast area of the United States, there may be more indigenous diseases than will be considered here, though, as a general rule, the maladies peculiar to any *one country* are few in number; but the absence of the statistics of diseases and their nature, owing to the *very small number of educated veterinarians*, renders it difficult to arrive at definite conclusions. It is to be regretted that we are not better acquainted with the diseases to which the horses of different sections are liable; these, if carefully noted, would enable us to arrive at some important pathological conclusions. This end, however, cannot be obtained until a sufficient number of *qualified* practitioners are scattered from one end of the country to the other; "a consummation devoutly to be wished."

The first disease in regard to importance, on account of its fatality and the number of its victims, is one that, at the present

*Reprint from Stonehenge on the Horse.

time, is creating considerable excitement among stock owners in different parts, viz., the States of New York, New Jersey and Pennsylvania, from whence we receive the most frequent accounts of it. It is not new; it appeared on Long Island eighteen or twenty years ago, and assumed the form of an epidemic; since that time there have been occasional outbreaks in different parts.

We have had opportunities of seeing a number of cases, not only in the epidemic form, but also some in the sporadic; the latter a rare one, usually occurring in cities, while the epidemic form is usually found in the agricultural or country districts; this sometimes also occurring in cities, as in Brooklyn, August, 1868.

Although this disease is not a new one, we believe its nature to have been misunderstood; in the different works on veterinary literature it is not mentioned; and those persons that have witnessed it, have called it by different names according to their fancy, or on account of some special symptom. Thus, some have termed it staggers, others putrid fever, others paralysis, paralysis of the throat, etc. While some few, on account of the difficulty in swallowing, have termed it diphtheria, a disease which, if it existed in the horse, could not be diagnosed with any degree of accuracy during life; as an examination of the fauces, which is necessary for diagnosis, cannot easily, if at all, be made. We have been for some years a disbeliever in the prevailing opinions with regard to this pathological condition, on account of the symptoms exhibited, and the post mortem appearances. We considered it (when dealing with sporadic cases) as a grave affection of the nerve-centres. This opinion was corroborated during the investigation of the disease in an epidemic form on several occasions. The symptoms then exhibited in the different cases affected, and the post mortem appearances, sustained our diagnosis and previous ideas of the disease, and in our opinion (in which we are happy to say we were sustained by a number of medical gentlemen) definitely established its pathology, which is

“CEREBRO-SPINAL MENINGITIS,” (epidemic).

The same disease that has prevailed, and is prevailing in the human race, and sometimes known as spotted fever.

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We will endeavor to give a brief outline of the symptoms as they occur in succession, causes as far as known, post mortem appearances, etc.

Animals, being deprived of the power of speech, cannot communicate to us their sensations, as pain in the head, spine, etc., which we know to be prodromes of diseases of the nervous centres; and pain is not always produced by pressure on the vertebræ; consequently, the disease usually has made considerable progress, and the products of the inflammation of the membranes of the spinal cord, or the extension perhaps of the inflammation to the cord itself (myelitis) of some portion of the spinal tract, causing loss of power of the muscles supplied by the nerves of the part, is the first intimation that we have of its existence.

The symptoms by which we recognize the disease appear suddenly, and they denote that some portion of the spinal tract is first affected, and is more marked throughout the career of the disease than the inflammation within the cranium as a rule, as the disease appears to affect first the membranes of one part of the cord, extend to the remainder, and involve the head in its course, but at a later stage. The attack may begin in one of two ways, though their terminating stages in fatal cases are similar.

In *one* of the two modes of attack, and the rarest form, the animals appear unsteady in action, and in the course of a few hours are prostrated from an inability to use the posterior extremities, the sphincters are relaxed, the muscles of the anterior parts of the body, neck and head will usually be found in a state of tonic spasm (trismus and opisthotonos, the condition of tetanus or lock-jaw), the pulse will be found quickened but soft, breathing accelerated. The change that occurs between this condition and death is the extension of the paralysis from behind forwards until it becomes apparently complete; a condition of coma or insensibility usually precedes death by several hours.

The *second* of the two modes of attack we wish to call especial attention to, as it is the way the *majority* of cases are first affected, while to an ordinary observer there appears to be little, if anything, amiss with the animal. At *first*, there is an inability to swallow fluids: in the course of a few hours to a day, there is a

copious discharge of saliva and mucus from the mouth, the animal may be continually masticating; if the mouth is opened, food will usually be found on the tongue, between the teeth of the upper and lower jaws, and between the teeth and the cheeks; in fact, the power of deglutition or swallowing is now completely lost for solid food as well as for fluids. The respiration in this stage is normal; pulse also, if any change it may be a little soft; bowels usually costive. If the hand is passed into the mouth, over the base of the tongue, the fauces seem relaxed, baggy to the feel. These are the only symptoms exhibited, as a rule, in this stage; though in one case which we had under treatment (May, 1868), active delirium existed, the animal fought and bored his head at the wall of his box similar to an attack of phrenitis. This case recovered, but it was a sporadic case, and they are usually more amenable to treatment than when they are of an epidemic character.

If pressure be made directly over the spine, pain is not usually evinced, and yet when the power of deglutition is *completely lost*, one may safely predict that before long the patient will be prostrated, unable to rise from lost power behind. When this condition or stage is arrived at, the further course of the disease is similar to that described as occurring in the first mode of attack: tonic or tetanic spasms of some muscles, while those behind are paralyzed, delirium more or less marked in the different cases, the paralysis extending forward presently, coma more or less profound supervening, eyes glassy in appearance and pupils somewhat dilated; the patients present no other changes, and death finally ensues.

Thus the cases, though beginning by two modes, have symptoms in common during their career; with, towards the close, loss of power, but not of sensation, tonic spasms, etc., increased respiration, pulse increasing as the cases approach a fatal termination, but remaining soft. We have noticed as a rare symptom, abnormal action of the heart, amounting to palpitation.

Post-mortem:

The "pia mater" exhibits appearances of acute inflammation, and coagulable lymph is usually found in abundance beneath the

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arachnoid membrane; the latter membrane has a blanched appearance. The inflammation is more strongly marked at the anterior cervical and lumbar regions of the cord and base of the brain than at other sections; (it is at parts of the body corresponding with these sections that we have the symptoms of paralysis from pressure most strongly marked during life.) The substance of the brain and the sections of the cord where the inflammation seems to be most intense, appear to be softened; it is reasonable to infer from certain symptoms that the inflammation extends to the nerve substance and produces changes in it, but this can only be decided by the microscope. The lung corresponding to the side the animal was lying on at the time of death is generally congested, but this appearance has no particular connection with this individual disease; a coagulum is sometimes found in the right cavities of the heart; this appearance also has no direct pathological connection with this individual disease.

These morbid appearances are all that are discovered, all the organs and viscera, with the exceptions noted, appearing to be normal; perhaps the morbid appearances would not be so marked if an examination was made of a patient dying soon after being attacked, as we have known a case to run its course to a fatal termination in eighteen hours after the first symptom was noticed. This remark will lead us to the consideration of the *duration* of the disease in fatal cases. According to our experience the minimum being eighteen hours, the *average* the latter part of the third or beginning of the fourth day, the maximum about eight days, from the appearance of the first symptoms. These remarks apply to the disease in an epidemic form; in the isolated or sporadic form as we have occasionally in cities, the cases are not as a rule as strongly marked in symptoms (though they may prove equally fatal in character) and are of longer average duration.

Pathological character, or nature. The anatomical characters point to inflammation of the meninges (membrane) of the brain and spinal cord, perhaps the brain and spinal cord being implicated as well. But in view of the disease assuming an endemic or epidemic form, the inflammation must be looked upon as an *effect* of some pre-existing pathological condition of the blood;

what that condition is, of course in our present knowledge it is impossible to say.

But there is one important point to be considered in this connection. In view of the endemic or epidemic character, the question naturally arises: Is this disease contagious or infectious? We do not believe it is either one or the other. When this disease breaks out among animals in a certain location, it may be fatal to many or all; but that is no proof of contagion or infection, for they are all alike exposed to the local existing cause whatever it may be. A healthy animal being placed in an affected district, and allowed to remain, may be affected, similar to a person contracting intermittent fever (fever and ague), but that is no proof of contagion or infection, for the same reason above stated. The only proof we can have, is of an animal affected carrying the disease *from* the locality where it was contracted and communicating it to healthy animals. Can this be done? In answer to this question we will say, that two years ago we had an animal affected with the disease removed to a stable among a number of healthy horses; the disease was fatal to the patient, but was not communicated to any others. We had a second case, placed under the same conditions, resulting the same as far as other horses were concerned, but the patient recovered, as it was seen early in the disease.

The non-communicability of the disease has again been proved by a recent epidemic in Brooklyn.

The Causation. When disease assumes an epidemic or endemic character, there is a special cause in operation, a blood-poison of some kind; but what it is we do not know. There may possibly be co-operating causes, which may assist the special unknown cause in producing the disease; for example: it usually makes its appearance in the spring and early summer months of the year, when the weather is changeable in temperature and frequently wet, like animal poisons generally that require a certain amount of *heat* and *moisture* to render them active in the production of disease, as they are considered by some as totally inert in power when in a quite dry condition, even under an elevated temperature. According to our experience, stable management

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has nothing whatever to do in its production, as it attacks those animals that are well cared for as well as those that are not; attacks in the field as well as in the stable. In fact, neither age, sex, condition nor mode of living seem to give exemption from an attack, or to modify the symptoms when it occurs.

Prognosis.—There is no disease of the horse with which we are acquainted so fatal as this one. In the last two epidemics that came under our notice, every animal attacked died; and in the different parts of the country where this disease (though under the different names previously stated) has been described by the newspapers as having occurred during the present year, the mortality they have said has been very large. In previous outbreaks very few horses recovered. We have succeeded in carrying four through the disease, but these were seen when they could not swallow fluids, but could still swallow food. The prognosis is, therefore, a grave one, and in the large majority of cases must be unfavorable.

Treatment. In a disease so rapid in its course and fatal in its character, it is extremely difficult to say anything satisfactory of the course of treatment to be adopted. There are certain indications to be fulfilled: the question is, "How is it best to carry them out? We must take into consideration the nature of the disease, the probable progress it has made, and the mischief done before the case is seen; it is not often that the veterinarian is called in at the onset, but generally when he examines his cases, he will find from the paralysis of some parts, as the throat or posterior extremities, that the inflammation has existed long enough for its products to be exuded from the vessels. We must also take into consideration that in the cases where the power of deglutition of both fluids and solids is lost, we are deprived of one method of administering medicine, viz., by the mouth, unless a stomach-pump should be within reach, whereby we might pump or pour the medicines through its tube safely into the stomach. We must give a caution with regard to administering draughts or medicine in a fluid form—it is often a risky experiment for an inexperienced person, even on an animal whose powers of deglutition are perfect, but in the cases now under consideration, where the powers are but imperfect, if not altogether lost, it is fraught with great danger. The

fluid may perhaps pass down the trachea to the bronchial tubes and produce death by suffocation. If *fluid* medicine is administered, it must be of a clear nature and but little in quantity. There are other methods of administering medicines, such as by the rectum, or the hypodermic method; but when suddenly called away from home, we have not always these facilities for administration.

The next questions are, "What medicines should be administered? What is the course of treatment to be adopted! As we have inflammation of a very important and grave character to deal with, all our treatment must be brought to bear upon it, to subdue it, if possible, or endeavor if we can to diminish its intensity, to limit it to a part of the spinal tract, and prevent it spreading to others. If when the surgeon is called, he finds the patients down, prostrated, or that they have lost for some little time previously all power of deglutition, he will find it almost useless to attempt treatment; but should the animal not be prostrated, and should it be able to swallow food, or a bolus, though it cannot swallow water, the prognosis is more favorable, and treatment should be undertaken and persevered in while there is a reasonable hope of recovery.

Blood-letting is a powerful antiphlogistic agent, but in the large majority of these cases there are no indications by the pulse for its use; it must therefore be dispensed with. We must resort to cathartics, such as aloes, as the depletive agent, and besides make use of those sedatives whose action is directed principally to the nervous system and that exercise an influence on the capillary vessels and limit the supply of blood going through them to a part. The agents we have used for this purpose are tinct. of aconite, and ext. of belladonna, alternately; commencing their administration soon after giving the cathartic, not waiting for its action, as time is very precious; in fact, we frequently combine the sedative with the cathartic, as follows: from 3 i. to ii. of ext. of belladonna with a full dose of aloes, for an adult horse; then administer tincture of aconite root, f 3 ss., in half a tumbler of water every three hours; or alternating every other dose with a medium dose of the extract. This is the course of treatment followed by us for several years, and in the cases where recovery took

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place. Local applications such as stimulants or counter irritants (blisters), to produce a revulsive action, should be applied to the spine and throat; these should be repeated from time to time if relief is afforded. Finally, should the case or cases be so protracted that failure of the vital forces (or great exhaustion) is apparent, all agents of a depletive or sedative nature must be abandoned, and stimulants and tonics be administered in their stead.

When the patients respond to the treatment, it will be found that the muscles regain their power in a short time, so that if it is the throat that is affected, in the course of a few days the patient will be able to swallow well, though some time will be required for a complete restoration to health.

Prevention. Can this disease when breaking out in *some* animals in a locality be prevented from attacking the others of the same locality? We think this can be answered satisfactorily; at least it has proved so on more than one occasion. The idea occurred to us while attending an outbreak on Long Island. From the commencement of the epidemic there had been one or two fresh cases occurring every day, and as there were other animals on the same farm, both in stable and field, that as yet appeared well, we thought it advisable to put them under a course of treatment to save them if possible. There were twelve horses and colts still remaining; three of these as an extra precaution we sent some little distance away; of the others, some were kept in the stable where the first case occurred; others were running in a field where two cases had also occurred, but all of the animals whether at home or those sent away, with the exception of an old blind mare that was considered useless, were placed under the same course of treatment with the following result. The old blind mare that received no treatment, died; no other cases have occurred on the farm though fifteen months have elapsed. This result was very encouraging; every animal that was put under treatment escaped an attack, while the *only one not treated* died. Acquainting a professional friend, Prof. Liantard, with the above facts, he soon had an opportunity of testing its merits for himself, and related to us its results. He placed all of the animals exposed to the disease in the outbreak he attended (and there was quite a number) under

the treatment with the view of preventing an attack, and succeeded in every instance except one. This animal was well, or apparently so, when the treatment was commenced, but subsequently died. It was discovered, however, that he was a very bad animal to give medicine to, and as its administration was left to a stable-boy, and as he was obliged to put his hand in the horse's mouth to give it, it is presumed from the fact of finding some of the medicine on the floor of his stall, that he received but little if any of it. Now a few words about the treatment adopted. When the idea suggested itself to us we knew nothing of the *cause* of the disease, and could do nothing in that regard; but knowing the *effects*, i. e., the inflammation, and that it might be lighted up at any time, we directed our treatment to the object of preventing it, if such a thing was possible. With this end in view, we pursued the same plan as with those already attacked, viz., depletion by cathartics, closely following it with *medium* doses of the sedatives before referred to, and with the happy results above stated.

Other measures of treatment, both as regards those attacked, and those under preventive treatment, will have reference to hygiene and diet. Keep the animals in stables or apartments that are clean, airy, but free from draughts. Let them have fresh water by them constantly; even if they cannot swallow much of it it will be grateful to them to wash their mouth, and they may even manage to get a little down. With regard to food; let them have small quantities of nutritious food, of small bulk, nicely prepared, and moderately thick gruel, etc. The surface of the body and extremities should be watched as regards temperature; if cool, then light, warm clothing and bandages to the limbs will, by equalizing the circulation, materially assist the treatment.

In pointing out the nature of, and naming this disease, we were guided by its identity with the cerebro-spinal meningitis or spotted fever of the human subject. The same lesions appear upon post-mortem; the symptoms referable to the nervous system are alike, with this exception, that paralysis is not as frequent in the human as in the equine race; it was only several years after we had written on this disease in the horse that we saw noticed by medical writers on the disease in the human subject the paralysis of the

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throat that is one of the most marked symptoms, in the majority of cases, in the horse. No petechia or spots were discovered on the animals, but they are frequently absent from cases in the human subject. Other points of similarity are the short career and fatal character, and being epidemic, or endemic; also, although, we do have some few cases in cities, usually of the sporadic form, it is generally in the rural districts where this disease appears.

There is a disease in India known as "*kumree*" that was very fatal to horses some years ago, the pathology of which was stated to be hemorrhage in the cord or between its membranes, causing paralysis by pressure, and terminating fatally. We mention this that the two diseases may not be confounded.

The *diagnosis* of cerebro-spinal meningitis is not very difficult if the animal is prostrated, the symptoms being well marked. But it is in the early stage when the throat is *first affected* that we must make the diagnosis if the animal is to have a chance of recovery. For this purpose, we make it a rule to have all the *apparently unaffected* animals frequently tested with a bucket of water to see if they can *drink*. If the amount of water is much diminished in the pail *by swallowing, not spilled over*, well and good. It is necessary for the test that they drink out of a bucket, or small vessel of some kind, where the amount taken can be noted, else a person may be deceived; for an affected animal will persevere in the effort for minutes, and to an ordinary observer seem to drink well, but no water passes down the *æso*phagus. As soon as an animal seems to be affected it must be placed under treatment immediately, and if it is in the country and likely to be epidemic (and it will soon prove itself), the effort to prevent others from being attacked had better be made, for an "ounce of prevention is worth a pound of cure." But in cities it will occasionally be found that out of a stable full of horses a sporadic case will occur, with no tendency to attack the others; it may be that the animal has been to an affected district, and brought the seeds of the disease away with it; but this is merely a matter of supposition, as we have no data to guide us.

AMERICAN VETERINARY COLLEGE.

COMMENCEMENT EXERCISES FOR THE SESSIONS 1892-3.

The winter sessions of the American Veterinary College were brought to a close on the 20th of February, and the commencement exercises took place on the evening of the 28th, at Chickering Hall, before a large audience, and numerous friends of the college. After prayer offered by Rev. G. E. Strobbridge, Mr. Samuel Marsh, President of the Board of Trustees, delivered the diplomas, conferring on the candidates for graduation, the degree of Doctor of Veterinary Surgery. Prof. C. Doremus, of the faculty, delivered the various prizes granted by the Board of Trustees, the Alumni Associations of the College, the New York State Veterinary Society, the two anatomical prizes, and that offered by the faculty to the junior class. Dr. Samuel Johnson, of the graduating class, delivered the valedictory address, one of the best ever delivered before a class of young medical students. The address was delivered by Rev. Henry Ward Beecher, with the eloquence and ability characteristic of that gentleman. It was full of interesting references to the profession, after which the benediction of farewell was given.

The platform was occupied by the Board of Trustees, faculty, members of the profession, and friends of the college.

The music was excellent, and through its melodious airs brought to the crowd assembled in the hall the wishes of hope for success to the new members of the veterinary profession. The graduates were:

Harry Louis Alderman, East Lexington, Mass. William Henry Arrowsmith, Jersey City, N. J. Henry William Bath, Staten Island, N. Y. William C. Bretherton, New York, N. Y. Eugene Burget, New York, N. Y. Lemuel C. Campbell, Sunbury, Pa. William Dana Critcherson, Westerly, R. I. Irving S. Denslow, Rochester, N. Y. Christmas Evans, Racine, Wis. Julian Edward Gardner, Springfield, Mass. Franklin Joseph Hanshaw, Brooklyn, N. Y. Fred. Willis Huntington, Woodford, Me. Joseph R. Hodgson, Brooklyn, N. Y. Samuel K. Johnson,

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New York, N. Y. Franklin May Kain, York, Pa. Richard Kay, San Jose, Cal. John Allebaugh Myers, Harrisonburg, Va. Arthur B. Morse, Boston, Mass. William Bertram C. Noyes, Boston, Mass. William Hamilton Pendry, Brooklyn, N. Y. Austin Peters, B. S., Boston, Mass. James F. Ryder, Jamaica, N. Y.

The following gentlemen were successful in the various departments in which they competed:

Messrs. Lytle, Pierce, Gilbert, Allen.

The prizes were awarded as follows:

The first prize, that of the Board of Trustees for the best general examination, consisting of a gold medal, to Dr. F. S. Hanshaw.

The alumni prize to the gentleman who passed the second best examination, consisting of a set of Veterinary works, to Dr. H. L. Alderman.

The prize offered by the New York State Veterinary Society a medal for the best practical examination, was given to Dr. R. Kay.

The anatomical prize to the senior class offered by Prof. A. Liantard, for the best set of anatomical preparations, was granted to Dr. R. Kay.

And the anatomical prize offered by Prof. A. Liantard for the best examination in his department, a silver medal was granted to Mr. W. R. Mitchell.

The Spring session opens on the 1st of March.

SOCIETY MEETINGS.

NEW YORK STATE VETERINARY SOCIETY.

The regular monthly meeting of the New York State Veterinary Society was held at the American Veterinary College, Tuesday evening Feb. 13th, 1883, at 8 o'clock p.m., with the President in the chair. After the calling of the roll and the reading of the minutes of the preceding meeting, Dr. Foote read a paper as follows:

FROM SOUNDNESS TO UNSOUNDNESS.

There is no subject that agitates the mind of the veterinarian more than that of soundness. The variable conception of the term has given rise to great embarrassment to the practitioner, and at times, almost to the ruin of his professional reputation. Decisions in courts have been reversed, and judges of equal rank have argued adversely; sellers and buyers of horses consequently suffering injustices of more or less extent. There is no branch of our practice in which we are so liable to err; hence, how important it is to us that we should have, as nearly as possible, direct rules to guide us, and a thorough understanding of their application, not only to the law, but to the interests of buyer and seller.

A long-standing question, which has never been satisfactorily answered, has been, "Where does Soundness cease and Unsoundness begin?" Nothing is more difficult to answer, and an absolute line of demarcation will probably never be arrived at. All that we can expect is that each case, where the question arises in law, may be decided upon its merits and justly. Almost every writer upon this subject has laid down a different line of division for these terms, resulting in the framing of many different definitions for these terms, the most of which have been comparatively worthless. The terms disease, injury, vice and blemish, have been misconstrued and used synonymously with the term unsoundness, and form has wrongly been considered as a factor in soundness.

In the latest work on this subject, written by Messrs. Goubaux and Banier, I find the definition of unsoundness given as "any apparent trace of depreciation found in or near the skin." This is very faulty, as it not only demands that the horse should be perfect anatomically, but certain unsightly colors, blemishes or variations of form that might depreciate the value of a horse would be considered unsoundness. Without mentioning further the absolutely imperfect definitions, I will give the qualifications for soundness as forwarded by Oliphant, and quoted by Hanover: "a horse is sound when he is free from hereditary disease, is in the possession of his natural and constitutional health, and has as

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much bodily perfection as is consistent with his natural formation." It appears to me that this definition requires an animal to be about as perfect anatomically and physiologically as any I can conceive, and as such would leave no doubts in one's mind as to the soundness and unsoundness of an animal, unless he should be the subject of some hidden disease, difficult of diagnosis, and only manifest at times, such as certain brain disorders, dyspepsia, rheumatism, &c., &c. But the law and practice do not recognize any such absolute rule as this, and it would destroy the value of the examination for soundness if they did, as we should meet with very few animals which could come up to such requirements, while there would be many which practically would be as valuable and as servicable.

Fearnley, in his work on soundness, gives the legal interpretation of the term unsoundness as understood by Lord Ellenborough in an English suit, as follows: "If at the time of sale the horse has any *disease* which either actually *does diminish* the natural usefulness of the animal, so as to make him less capable of work of any description, or which in its ordinary progress *will diminish* the natural usefulness of the animal, this is unsoundness; or if the horse has either from *disease* or *accident*, undergone any *alteration of structure* that either actually *does* at the time or in its ordinary effects *will diminish* the natural usefulness of the horse, such a horse is unsound." This definition is undoubtedly correct, as far as it goes, but what are we to do with that vast number of blemishes, if you wish to call them such, which are the results of disease and which do not interfere with the animal's natural usefulness, such as an enlarged limb in a draft horse; a fibrous tumor on the elbow; the result of a shoe-boil; a large splint or an exostosis of the hock. Are such disfigurements to exempt a horse from being considered sound?

My solution of the problem is to divide the subject into three degrees of condition, namely: *soundness*, *practical soundness* and *unsoundness*; the first degree, *soundness* requiring an animal to be free from disease or any effect of disease which alters his natural conformation, action or usefulness. This ruling does not demand that a horse be free from blemishes, nor faulty formations,

such as are hereditary. This distinguishes the question of soundness from external form, a necessary reformation, judging from the decisions rendered by the courts in the past, and the ruling set down by Hanover in his work, entitled "Law of Horses." After considering that overreaching, when caused by improper management, is not an unsoundness, he says on page 88, "but when overreaching or clicking is caused by his body being too short for his legs, or, as some express it, his legs being too long for his body, the danger is much greater than in the former case; for in this latter he is much more liable to tread on the heel of the forefoot, and thus throw himself down, or to tear off the fore foot shoe, in this instance also running a great risk of falling, such clicking stamps a horse as *unsound*." Again, on page 89, referring to *pigeon-toed* horses, he says "should the peculiarity impede them in their labor, they are *unsound*."

These are purely cases of bad external form, and have nothing to do with the animal's state of health, however disastrous they may be to his usefulness, unless these bad conformations are the effects of disease, or have given rise to wounds, in which case they come under the general rule governing soundness. It would be just as reasonable to consider a horse with a large head, heavy neck and shoulders, and comparatively light hind quarters, as unsound, from the fact that such an animal would have the centre of gravity thrown so far forward, as to be liable to stumble, and injure himself or rider.

Again, we must discriminate as to the use a horse is to be put to when we regard his soundness. On page 59, Hanover says of saddle-backed horses, "When the back is so low as to disenable the horse to carry proper weight, though he may be a good harness horse, he is as a saddle-horse, *unsound*," and on the same page, of *roach-backed* horses, he says, "When the back is weakened, or the horse is thereby impeded in his work, he is *unsound*."

When a horse is brought to us for examination for unsoundness, it matters not to us what use he is to be put to. A buyer has his own opinions regarding form, and usually depends upon them. If he makes an error, he should stand the consequences, unless he has received a special warranty from the seller that the horse was suitable for such and such a service.

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What shall we include in the intermediate degree, that of *practical soundness*?

All horses that are free from disease and effects of disease or accidents that interfere with their natural usefulness, or in future would be liable to interfere with this usefulness.

Horses could come under this category even though they had bony tumors, or soft tumors in various parts of their external anatomy, provided they were not lame, or liable to be made lame from them, or otherwise were not injured for their work. A horse disfigured by a fibrous tumor, the result of a shoe boil, would, ordinarily, not be inconvenienced by it in his work, and unless there were prospects of further disease in the part, he could be practically sound. He might have splints, wind galls, and even enlarged hocks, but if his action was not interfered with, he would be practically sound, and one might go on to a considerable extent, mentioning slight disfigurements, which would debar a horse from the first degree of soundness, but would not injure his natural usefulness, and hence admit of his being practically sound.

Under the head of *unsoundness* would be included all horses that could not be embraced in either of the preceding classes.

As to the confusion caused by not properly applying the terms vice and unsoundness to their respective definitions: cribbing, weaving, kicking, rearing, shying and running away, are all so many vices, until they can be found arising from some disease, result of a disease, or accident, or until found to give rise to some disease. While the law has been generally so construed, there are many exceptions to the rule, and horsemen and veterinarians have often considered such vices as unsoundness. It has been ruled many times that temporary ailments or injuries do not constitute a breach of warranty, or, in other words, do not constitute an unsoundness. Happily, this ruling is pretty much out of date. One cannot be too careful in wording certificates in such cases, and they should always be made conditional, and a special warranty should be demanded from the seller. I examined a horse for soundness last spring, which was sold as sound with the exception of a cough, claimed to be due to a

slight cold. Without examining into the cause of the cough, I found the animal otherwise unsound, and he was returned. I was informed by the seller that the horse died shortly after, with inflammation of the lungs. I noticed no symptoms of such a serious complaint when I examined him, but if I had found him sound otherwise, and had not examined carefully into the cause of his cough, a disagreeable law-suit might have resulted. Like cases are continually occurring, and demand the utmost care on the part of the veterinarian and the buyer.

Dr. Michener considered it strictly necessary to examine the lungs, and a cough from whatever source, as an unsoundness. In making out a certificate, he recommended to avoid using the expression, "the horse is sound," and to substitute for it, "fail to find any unsoundness," the form that Dr. Liautard has used for some years.

Dr. Crane said: "The veterinarian's ability is the only question in the examination, and if no unsoundness is found, I would advise the use of the term "sound."

Dr. Coates gave as a definition of unsoundness, "any abnormality that interfered with function of a part," and thought it unnecessary to specify an unsoundness excepting verbally to the owner.

Dr. L. MacLean considered a horse with a non-progressive disease, such as a splint and a curb are at times, that do not interfere with his usefulness, as sound.

Dr. Field stated that he had to qualify, and write out in full any blemishes or disfigurements, but he avoided the use of the word unsoundness, as it alarms the buyer, and does an injustice to the seller.

Dr. Liautard said: "We will never agree as to the mode of conducting our examinations for soundness. The intermediate degree only complicates the already intricate subject. We should confine ourselves to the two terms, sound and unsound. You owe your employer all the explanation possible why you discard a horse, but is it always possible? We may need time, and as long as the seller is notified of the judgment, we do not need to hurry in

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making our diagnosis. The reason why we have this trouble in our examination for soundness, is because we copy after the English custom. We should have a law that an animal, which is free for a certain time from the date of purchase, from certain specified diseases, is sound. This is the law on the European continent, and covers the ground.

A vote of thanks was extended to Dr. Foote for his paper.

The society then went into executive session.

The Committee on Nominations reported favorably on the name of Dr. D. J. Dixon, and he was elected to membership.

Dr. C. B. Michener was appointed essayist for the annual meeting, which will be held at the American Veterinary College, Tuesday evening, March 13, 1883, at 8 o'clock.

H. T. FOOTE, M.D., V.S.,

Secretary.

MEDICAL ASSOCIATION OF THE AMERICAN VETERINARY COLLEGE.

The College Association of the American Veterinary College is probably but little known to any except the students and professors of that institution. In order that veterinarians generally may gain some idea of the great interest and benefit that the society affords its members, we may be pardoned for asking space in your columns to refer to it.

This Association, which has been in existence since the first session of the college, was organized for the purpose of educating the student how to write on veterinary subjects. That this object is attained, is attested by the excellence of the papers read.

The subjects are assigned at the close of the session to each of those who are to constitute the next year's senior class. The society meets once a week during the entire session, and at each meeting a paper is read by some one, and discussion or debate follows—the writer to defend his opinions advanced as best he can. The president, a member of the Faculty, as a rule devotes a few minutes to remarks on the papers and discussion.

During the present session many interesting and highly creditable papers have been read. They were very generally discussed

by the class, and a great deal of attention and interest manifested.

Among the subjects discussed were contagious pleuro-pneumonia, purpura hæmorrhagica, glanders and farcy, soundness, lameness of various kinds, intestinal disorders, heredity, etc., etc. It would be a matter of surprise to veterinarians were they to attend these meetings and listen to the discussion. The papers are always *well* written, and the remarks that follow do credit to older and more experienced heads. Of a membership of nearly sixty students this session, it was the exception to note many absent. In order to stimulate still further the efforts to make the Association eminently beneficial to the students, the president of the society has offered a silver medal to be given to the writer of the best paper, and who shall have defended his thesis in the best manner.

The subjects for the coming class have all been assigned, and the prospect now is that the coming session will witness even better results than heretofore. The officers elect are: President, Prof. Ch. B. Michener; Vice-President, — Allen; Secretary, — Ross. The treasurer is to be elected from the next year's junior class. With your permission, Mr. Editor, the society will gladly forward to you some of its papers for publication in the REVIEW.

A. E.

MONTREAL VETERINARY ASSOCIATION.

The fortnightly meeting of this Association was held last night in the lecture room of the Veterinary College, Prof. McEachran in the chair. Besides a large number of students and veterinary surgeons, there were present Alderman Fairbairn, Mr. Bickerdyke, Mr. Morgan, Mr. Versailles and others interested in the subject of discussion—inspection of meat and abattoirs. After routine business, Mr. Bell read an exhaustive paper on "Navicular Disease;" Mr. Clement reported the operation of lithotomy on a horse, performed on Monday last, at the College, by the Principal, and exhibited the calculus, weighing three-and-a-half ounces, the horse being now considered out of danger, and will be discharged on Saturday next. M. Daubigny then read a paper,

in French, on "Meat Inspection and Abattoirs," in which he pointed out the defects of the inspection as at present carried on at the abattoirs, urged the necessity of ante-mortem, as well as post-mortem examination by scientific inspectors, who should be microscopists, so as to enable them to detect the presence of parasitic diseases. He noticed at length the thorough system followed by the governments of France and Germany, and in conclusion urged that the inspectors should be well paid, so that they should be independent, and they should have the moral support of the community, besides the proper legal authority, to carry out thorough inspection in the public interest. The paper was a very able and scientific exposition of the subject, which was listened to with marked attention, and called forth eulogistic remarks by Alderman Fairbairn, Mr. Bickerdyke, Mr. Morgan, and others, who urged improvements in the by-laws, giving inspectors power of confiscation, moving cattle markets to the abattoirs, having cattle kept twenty-four hours before being killed.

Dr. McEachran, in a few remarks on the subject, referred to its great importance. One of the most important duties of a College like this was to prepare the students to become thorough sanitarians. Meat inspection was a most important sanitary question. There could be no doubt that scientific inspection was the best mode. Years ago it was laughed at, but to-day it was gaining many supporters. He referred to the fact that pork from the United States was shut out from Germany and France, because those countries knew that there was no inspection in the United States. It remained for Canada, Dr. McEachran said, to open up this field, and thus gain an immense trade with those countries. He said that scientific inspection would be the very backbone of the butchers' trade, who would lose nothing by its adoption. He expressed the opinion that the inspectors should all have the power of confiscation, as without this power their inspection was worthless, and he hoped that the agitation for this improvement would be kept up until it was obtained. He was also of opinion, that slaughtering outside the city limits should be abolished, and that no animal should be slaughtered for human food until it had rested twenty-four hours.

On motion of Ald. Fairbairn, seconded by Dr. Alloway, a vote of thanks was returned to the lecturer for his interesting paper, and the meeting then adjourned.—*Montreal Gazette*.

ONTARIO VETERINARY ASSOCIATION.

The annual meeting of the Ontario Veterinary Association was held in the Ontario Veterinary College, Toronto, on Dec. 21st, 1882.

Members attended from all parts of the Province, also some from the United States.

The President, Mr. Elliot, in his opening address referred to the advancement of the profession in Canada, and cited as proof of the confidence of the public in its members, that not a dollar of the funds of the Association had to be expended in defending members in law courts. He expressed the opinion that a beneficiary society, in connection with the Association, would be appreciated by its members, and closed his remarks with a well-merited eulogium of the Ontario Veterinary College.

The minutes of the last meeting were then read and confirmed, and the Secretary's and Treasurer's reports read and adopted, showing the finances of the Association to be in a healthy state.

Dr. Duncan moved, seconded by Mr. Wilson, supplemented by some very complimentary remarks by Professor Smith, that in view of the great services rendered to the veterinary profession by George Fleming, Esq., F.R.C.V.S., through his valuable contributions to veterinary literature, through his exertions in the passage of the Veterinary Act of 1881—and in other ways—therefore, be it—

Resolved, That the Ontario Veterinary Association, on behalf of colonial practitioners, records its high appreciation of the labors of Mr. Fleming, and requests its Treasurer to forward the sum of twenty-five dollars, as a contribution toward the testimonial about to be presented to that gentleman, in acknowledgment of these services.

The resolution was carried unanimously.

Mr. Cowan moved, seconded by Mr. Coleman, That the

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Association having learned with pleasure of the honor that had been conferred on Professor Smith, Principal of the Ontario Veterinary College, by electing him an honorary associate of the Royal College of Veterinary Surgeons, desires to express its appreciation of the honor conferred on the respected Professor of the Ontario College, and through him on the veterinary profession on this continent. Carried.

Dr. Duncan, in addressing the meeting, expressed the hope that increased interest would be taken in the meetings, and that members should regularly read and discuss papers at each meeting.

Messrs. Rogers, Cowan and Sweetapple, agreed to read papers at the next meeting.

Mr. Hinman gave a very interesting account of a peculiar case in his practice.

Attention was called to a person advertising illegally as a veterinary surgeon, and the Secretary was instructed to notify him to discontinue so doing.

Some matters relating to the tariff of fees, were then discussed.

Several new members were duly elected.

The election of office-bearers for the ensuing year then took place, with the following result: Mr. C. Elliott, re-elected President; Mr. Coleman, First Vice-President; Mr. O'Neil, second Vice-President; Mr. Sweetapple, Secretary; Mr. Cowan, Treasurer; Messrs. Hamilton and Hinman, Auditors; Messrs. Hinman, Sanderson, Hamilton, Caesar, Wilson, Logan, Steele and Grange, Directors. Honorary Director, Professor Smith.

Moved by Mr. Wilson, seconded by Mr. O'Neil, that the sum of twenty-five dollars be appropriated for a medal to be competed for by the students of Ontario Veterinary College, at the spring examination. Carried.

The meeting then adjourned, to meet again in the spring.

CORRESPONDENCE.

ANTI-PYRETIC EFFECT OF QUININE.

DEAR SIR.—While reading the February number of the REVIEW, my attention was called to the article written upon the

"Anti-pyretic Effect of Quinine, in the Treatment of Pneumonia in the Horse." While I fully agree with the gentleman, with regard to the value of quinine in the treatment of that disease, I cannot see that he has demonstrated its good effect, in his case, from the fact of his having given it in such extremely small doses. And in conjunction with it, he gave aconite and Dover's powder, both of which lower internal temperature. When an animal with a high temperature is placed under the influence of the three above-named drugs, I would think it a rare case if the temperature was not affected, and I do not think it would be within any person's power to say which one of three produced the effect.

Since I have been connected with the hospital department of this institution, I have seen a great number of cases of pneumonia, especially the past few months. In the largest and best kept boarding stable in this city it prevailed as an enzootic, and, all affected, having a temperature above 104° F., were treated wholly upon quinine and ammonia carbonate. There were twenty odd horses sick, and only one of that number died, that being complicated with bronchitis and pleurisy. I have noticed that in uncomplicated cases of pneumonia, quinine very readily lowers the temperature, while if bronchitis is associated with it, the anti-pyretic effect is not as quickly obtained.

Dunn, in his work on Veterinary Therapeutics, gives the dose of quinine for a horse, as from grs. x to grs. xx., that is, a good tonic dose, but I do not think that quinine given in that dose to a horse, will have any effect upon abnormal temperature in the least; men have been known to take grs. xl., at a dose, without bad results following; in the horse I have never seen its toxical effect produced, but I will venture to say, that 3 vi. will not produce it on animal of 1200 lbs. weight. The following are reports of four cases; two of which were patients in the hospital, and two outside.

Case No. 1.—On the 28th of December called to see a large grey gelding, used for hack purposes. This horse had double pneumonia—more extensive in the left lung. Treatment prescribed was ammonia carbonate, and poultice to the sides

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of the chest; his temperature was 104° ; pulse 72; respiration 30; directions were given to restrict his diet to oats, carrots, apples, etc. Upon the following day the thermometer registered $105\frac{1}{4}^{\circ}$; pulse same as the day before; respiration less; prescribed 3 ii quinine at once, and another 3 ii at night, it being about noontime when he received the first. On the 30th his temperature had fallen to $104\frac{1}{2}^{\circ}$; 3 ii quinine was then ordered every six hours. On the 31st, his temperature was found to be 103° . On that day the quinine was stopped, the animal doing well otherwise as could be expected. On the 2d of January his temperature had risen to $104\frac{1}{2}^{\circ}$, and quinine was again administered every six hours, until three balls of 3 ii each, had been given, when the temperature went down to 101° , and remained, the animal making a good recovery.

Case No. 2.—A sorrel gelding used for road purposes, had pneumonia of the left lung, with a temperature of 105° ; quinine in 3 ii doses every twelve hours, and ammonia carbonate. On the third day after the horse was first seen the temperature was lowered to 102° ; quinine was then stopped, the temperature never going up until after the lungs had entirely cleared up, when his temperature rose to 103° , and he was found to have rheumatic synovitis of one front leg.

Case No. 3.—On the 6th of January a large chestnut gelding admitted to the hospital. This horse was used for saddle purposes. Diagnosis, pneumonia of the right lung. Temperature, 105° ; pulse, 60; respiration, 32; treatment, ammonia carbonate, and oil silk jacket to chest. On the evening of his admittance, he was given quinine 3 ii, repeated in the night at 11 o'clock, and again on the following morning, when his temperature was down to 104° . He was given two more doses of quinine, at intervals of twelve hours. When his temperature had gone down to 103° , the quinine was stopped. It rose to $103\frac{1}{2}^{\circ}$ the following day after stopping the quinine, but never went higher.

Case No. 4.—On New Year's day I was called to see a saddle horse, the history of the case being as follows: During the first part of the preceding month he was affected with *strangles*, a large swelling of the parotid region. Poultices were ap-

plied for four days, followed by counter irritation, the swelling disappearing in about fifteen days, without any discharge. The animal did not appear to do well, having a cough, and partial loss of appetite. On the day I went and saw him he was found with slight abdominal pains; respiration, 50; pulse, 85; temperature, $105\frac{3}{4}^{\circ}$; anxious expression. A diagnosis was made of lobular pneumonia, prognosis guarded, having fears of a suppurative termination. He was sent to the hospital on that day, and arriving here at two o'clock, was immediately given quinine 3ss, which lowered his temperature to $104\frac{1}{4}^{\circ}$. That night at 8 o'clock he was given 3ii quinine, and on the day following his temperature had fallen to 103° ; quinine was stopped then; stimulants from start, and no further trouble during his sickness. I would not have given such a large dose of quinine ordinarily, as this horse did not weigh over 950 lbs., but fearing the formation of pus, I gave the dose both for antipyretic and antiseptic effects.

FRED. SAUNDERS, D.V.S.,

House Surgeon, A. V. H.

EXTRACT FROM THE REPORT OF C. P. LYMAN.

In the Report of the Commissioner of Agriculture for 1881 and 1882, which has just been published by the Department at Washington, appears the final report of Mr. Charles P. Lyman, Veterinary Surgeon, upon the prevalence of contagious pleuropneumonia within the United States, and as affecting the cattle from the United States, as they are landed in Great Britain. After stating various facts, and making some quotations from reports of the various inspectors, who were appointed by the Department in the different States, going to show that the extent of infected territory does not differ materially from that already defined by him, Mr. Lyman goes on to say:—

“I do not know that I can add much to this report that will increase its value; the facts speak for themselves. Although I think that most decidedly England has never received a case of pleuro-pneumonia from either Boston or Portland, I still think

that their position upon the question of their receipt of our cattle is a perfectly fair one, and leaves no room for complaint. When it is remembered how many thousand pounds sterling have been lost by British cattle-owners, on account of the introduction among their herds of foreign cattle affected with exotic contagious diseases, and, as they say, when one thinks of how little provision we, as a government, have made to prevent the spread of pleuro-pneumonia, it is difficult to see how they can do otherwise. That this disease really has an existence in a certain part of this country, they, through their consuls, are as well aware as we, and no amount of testimony to the contrary by this intelligent farmer, and the other experienced dealer, will have the slightest possible effect upon their action. I thoroughly believe that were we able to show a country entirely free from this disease, the restrictions now imposed upon our cattle landing in Great Britain, would at once be removed, other conditions being the same as now. That is, I am a strong believer in their honesty of purpose in this matter. It is a significant fact that no condemnations have been made since last June, upon cattle coming from Boston or Portland. In regard to ridding ourselves of this present incubus upon what should be a large and profitable export trade, and which now seems threatened with extinction, as well as to prevent for all time the great danger, which I feel to be a real one, of the introduction of this pest to our Western cattle ranges, from whence it could never be dislodged, I can think of but one method which seems to me to offer in any degree a hope of success, and that is for Congress to take the matter in charge in some way that will give the power to, and compel some *one* authority to control the movements of all animals within the diseased districts, and at the same time take such other steps as may be necessary for the killing of all animals diseased or infected. I have no faith in the unanimity of action in the matter by the directly interested States themselves—this, for various reasons, which I have thoroughly learned to appreciate during my recent experience. Neither will action, which only creates a power capable of spasmodic effort, be of avail, else the whole country will but repeat the recent experience of the State of New York—a num-

ber of thousands of dollars spent, and a full supply of pleuro-pneumonia on hand.

Therefore, unless national action can be had, and that in such a way and under such circumstances as to ensure the continuance of proper measures until the desired freedom from the disease is attained, it would be just as well, so far as the effect upon contagious pleuro-pneumonia is concerned, to let the matter alone first as last, and certainly to do so at first would contribute very largely to the comfort of any one who might be appointed executive of any compromising methods of extermination; that is, if it is not a "bull" to assume that one can stop doing a thing before he commences it.

NEWS AND SUNDRIES.

A MALIGNANT DISEASE exists among the swine in some parts of the State of Maine. The disease is similar to cholera, the first symptom noticed being coughing.

CURIOUS GROWTH.—We sold to Dr. Leidy, last summer, for his Philadelphia collection, a lower jaw of a boar, whose canines (tusks) had grown uninterruptedly until they had described an entire circle, completely crossing both rami of the jaw, and tearing away, with great disturbance to the alveoles, two of the molars on each side. We are now shipping to Mr. J. Z. Davis, of San Francisco, an immense stuffed hog—nine feet long and four feet high—whose tusks have undergone the same monstrous growth, causing the death of the animal.—*Ward's Natural Science Bulletin*.

APPROPRIATION RECOMMENDED.—The House Committee on Agriculture have agreed to recommend an appropriation of \$30,000 for the purpose of sending representatives to the International Live Stock Exhibition at Hamburg, Germany, next summer.

AMERICAN PORK.—The authorities at Berlin are discussing the propriety of prohibiting the importation of American pork, which is said to be largely infected with trichinæ.—*Medical Record*.

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MALIGNANT "PINK-EYE."—"Pink-eye" has broken out in certain localities of England. It is now prevailing to some extent at Newcastle, Gateshead and Durham. The disease is of a malignant type, and fatal cases are proportionately more numerous than when this disease prevailed in the same localities last year. One owner is reported to have lost fourteen horses.—*Turf, Field and Farm*.

HYDROPHOBIC MEAT.—At Reading, Pa., lately, the authorities arrested two country butchers, charged with selling the meat of three hogs which were bitten by mad dogs, and died of rabies. It is alleged that a number of persons became sick after eating the pork. Similar instances have been reported where the flesh of sheep bitten by rabid dogs have brought on severe symptoms. All such animals should be slain and buried or burned.—*Medical and Surgical Reporter*.

TRICHINÆ IN ADIPOSE TISSUE.—It has been generally assumed that trichinæ occur only in the muscular substance, and are not found in the fatty tissue. Chatin's latest investigations have, however, shown that trichinæ occur uniformly in the latter, where the parasites are free or only loosely connected with the neighboring tissue elements. Their nature may readily be mistaken, but is shown by the simultaneous occurrence of encapsuled trichinæ in the muscular tissue. Experiments proved that animals fed with trichinous fat exhibited no indications of trichinosis, while others fed with the flesh from the same infected animal quickly suffered and died with symptoms of intestinal trichinosis; although further observations on the comparative innocuity of the fat must be made before the fact can be regarded as of hygienic importance. The practical value of the discovery at present seems to be that the fat, as well as the flesh, of suspected animals should be examined.—*Gaillard's Journal*.

PREVENTION OF HYDROPHOBIA.—Pasteur claims to have four dogs which cannot be inoculated with rabies by any method. These dogs have been protected by previous mild attacks of rabies, from which they recovered.—*Medical Record*.

SERIOUS LOSS.—Last year the United States exported 108,110 cattle, 2,243 horses, 2,632 mules, 139,676 sheep and 36,368 hogs.

Of the cattle shipped, nearly all went to Great Britain. Had there been no pleuro-pneumonia in the United States, each of these bullocks might probably have been sold for fully \$15 more than was got for him. This would make a difference of \$1,600,000 in favor of American cattle-growers.—*Prairie Farmer*.

A THREE-LEGGED COLT.—In a stall at the iron yard of Mr. Philip Lewinski, at 254 and 256 Nassau Street, Brooklyn, L. I., reclines, or rather stands, for he is on his feet most of the time, a three-legged colt. A freak of nature robbed him in embryo of his right fore-leg, but the absence of this member does not entirely prohibit him from indulging in the playful antics peculiar to youngsters. He was foaled July 24, 1882, at St. Ours, Province of Quebec, Canada, and is a remarkably large colt for his age. The leg has not been amputated, but is the result of malformation. The shoulder blade is perfect, but, as a matter of course, without the limb, the colt is unable to move it. Where the arm of the leg should begin, the bone seems to have curved, making it appear round both to the eye and touch; skin and hair cover it completely, no abrasion or parting being visible. With the exception of the missing leg, the animal is built as he should be; but when standing behind and looking through the legs, the only fore-leg slopes so that the foot comes directly in the centre of the chest. When moving, the fore-leg is thrown forward by a slight upward jump, and the hind-legs are moved as if walking. The colt feeds well and romps about the stable, but unless exhibited, will never pay his way.—*Turf, Field and Farm*.

EXCHANGES, ETC., RECEIVED.

FOREIGN.—Revue d'Hygiene, Gazette Medicale, Recueil de Medecine Veterinaire, Veterinarian, Archives Veterinaires, Annales de Bruxelles, Veterinary Journal, Clinica Veterinaria, Revue fur Thierheilkunde und Thierzucht, Journal de Zootechnie.

HOME.—Medical Record, Medical and Surgical Reporter, Turf, Field and Farm, Spirit of the Times, American Agriculturist, Country Gentlemen, Rural New Yorker, Breeders' Gazette, National Live Stock Journal, Farmers' Review.

COMMUNICATIONS.—Fred. Saunders, H. T. Foote, C. P. Lyman, C. B. Michener, H. F. James, C. H. Peabody, J. Kemp, G. Bailey, N. H. Hoskins, W. Osler, M. D., M. Thomas.

PAMPHLETS.—On Certain Parasites in the Blood of the Frog; An Investigation into the Parasites of the Pork Supply of Montreal; On Canadian Fresh Water Polyzoa.

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